

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

6257

1891/52



RARE

WATER

N. J.

Sturtevant

LILIES

WATER LILIES IN CENTRAL PARK.

DEPARTMENT OF PUBLIC PARKS, NEW YORK,
OFFICE OF SUPERINTENDENT OF PARKS,
January 25th, 1887.

MR. EDMUND D. STURTEVANT,
Bordentown, N. J.

Dear Sir:—We last year used a large number of your exotic species of Water Lilies in the Terrace Fountain Basin at the new Lily Pond, near Seventy-fourth street and Fifth avenue, and in the Fountain Basin at Union Square. Nothing that has been done in the parks for many years has excited such widespread attention and favorable comment as the magnificent show of flowers which were produced at these localities from July until October. The plants sent us were strong and arrived in excellent condition, and we expect that our Lily Pond will remain as a permanent feature, and that in time we shall have all the species of Water Lilies that will thrive in this latitude.

Respectfully,

SAMUEL PARSONS, JR.
Supt of Parks.

NOTES FROM THE PRESS.

Our Water Lilies.

From the New York Independent, September 30th, 1886.

The *Nymphaea odorata* (White Water Lily) and several of her most charming relatives, continue to hold receptions at the Lily Ponds (only this year known as such in Central and Union Parks), and their combined powers of attracting conventions now and then, to discuss beauties, merits and names, are worthy of notice. In blossom and leaf these aquatic plants interest many people not accustomed to seeing them in our metropolis, where everything but they, it would seem, has long had the preference with those who cultivate the beautiful in nature. The several lilies now displayed so well in our own *Aqua Crotona* have proved themselves very welcome strangers, and are fascinating objects to the learned and the unlearned. Too soon, alas! our "feast of lilies" will be over, and we are quite willing to make the most of them. When the frosts come we must be content "to have and to hold" simply in remembrance the greater part of our floral treasures, and the blooming Water Lilies as well. * * * The flourishing plants at Central Park and Union Square came from Mr. Sturtevant's collection at Bordentown, where that enthusiastic cultivator of aquatic plants has shown what can be done with the tropical and hardy lilies under good treatment. * * *

M. P. JANES.

"The Fifty-eighth Annual Exhibition of the Massachusetts Horticultural Society was opened at 3 P. M. yesterday, in the hall, on Tremont street. * * But the display which attracted decidedly the most attention was a novel one at these exhibitions, that is, the immense leaves, fully as large as a cart-wheel (to use a homely illustration), of the giant Water Lily *Victoria regia*. This plant was grown by Mr. Edmund D. Sturtevant, of Bordentown, N. J."—*Boston Herald*, September 17th, 1886.

American Florists' Convention at Philadelphia.

"But the glory of the exhibition was Sturtevant's aquatics; two large water-tanks were filled with them. The plants comprised *Nymphaeas* in great variety, flower and leaves of the *Victoria regia*, and dozens of blossoms of *Nelumbium speciosum*, together with immense leaves six to eight feet high."—*London Gardening World*, September 18th, 1886.

CATALOGUE
OF
Rare Water Lilies

AND OTHER
Choice Aquatic Plants,
WITH
CAREFUL DIRECTIONS FOR THEIR CULTURE.

For Sale by
EDMUND D. STURTEVANT,
BORDENTOWN, NEW JERSEY,
AND
LOS ANGELES, CALIFORNIA.

1891-92.

HARRISBURG, PA. :
J. HORACE MCFARLAND, PRINTER FOR NURSERYMEN, FLORISTS AND SEEDSMEN.

"A piece of color is as useful as a piece of bread."—HENRY WARD BEECHER.

"To those who are verily awakened to the great worlds of truth and beauty, the universe daily becomes a sublimer miracle. Not a summer cloud sleeps in the blue air, or unfolds its pure fullness, or melts in the distance, but they are dissolved in a luxury of contemplation and think of Him who spreads above us the glory of cloud-land wherever we are, and when all around us is tamely wearisome. Not a landscape lies dreaming in the sunshine, and slowly expands itself to the passing gaze, but they are intoxicated with a more fiery sense of beauty until their vision often swims with tears of gratitude for existence, and the heart is ready to break with a weight of blessedness. Their souls overflow with the 'glory of the sum of things' Every flower that looks up, and every star that looks down, smiles to them the smile of God; and every stream that dimples away, or thistle-seed that floats in the noontide, bears them onward to limitless seas of thought and joy."—HENRY W. PARKER, in *The Spirit of Beauty*.

"Seek the lotus, and take a draught of rapture."—MARGARET FULLER.

INTRODUCTORY.

IN PRESENTING this new edition of our catalogue, we beg to refer to a prophecy made several years ago, when the culture of aquatic plants was in its infancy in this country. From our first catalogue (issued in 1881) we quote this paragraph :

“ In a late number of *Harper's Monthly Magazine*, one of our ablest horticultural writers discoursed very pleasantly upon the ‘ Possibilities of Horticulture.’ We feel confident that if this writer could have seen our collection of aquatic plants, in full bloom, he would have added to his list of ‘ possibilities’ the Water Lily Garden, or the Garden of Aquatic Plants. We confess to an enthusiasm in this direction ; and predict that at no distant day, when the rage for carpet-bedding shall have somewhat abated, this branch of gardening will receive a large share of attention.”

It is not an immodest statement to say that this prophecy is now being fulfilled. In this year, 1891, we find the taste for water gardening becoming quite general. Our patrons owning private gardens are scattered over the whole land. The most noted public parks in the country now make aquatic plants a prominent feature ; Fairmount Park, Philadelphia, led the van several years ago, then followed Central Park, New York. The various lily ponds in this park, and the numerous fountain basins in the city squares, now yearly present a picture of beauty which is greatly enjoyed by thousands of people. Golden Gate Park, San Francisco, the parks and Botanical Gardens of Washington City are also our patrons, and the past season the famous South Park of Chicago was added to the list.

“ A MEADOW MUDHOLE.”—In *Harper's Magazine* for May, 1889, an article appeared with the above title. The lotus pond there described and illustrated and the water gardens referred to, are those of our establishment. In the *Garden and Forest* of April 10th, 1889, there also appeared an article on the Lotus, which is reprinted in these pages.

We are informed that an article upon water gardening from the pen of a prominent landscape architect will shortly appear in *Scribner's Magazine*. Thus it will be seen that the best literary and horticultural periodicals of the country find this subject worthy of a place in their pages. That this increasing popularity of aquatic gardening is largely due to the work done by this establishment, we believe is generally admitted. This work was born of an enthusiasm which we trust has added something, and may continue to add, to the sum total of human happiness.

EDMUND D. STURTEVANT.

Bordentown, New Jersey, February, 1891.

NOTES.

Book on Aquatic Plants. We receive frequent inquiries for a book on Water Lilies. There is no other work known to us which treats alone of this subject besides our catalogue, and none which gives so much information in regard to their culture.

Our Colored Plate of the Lotus is an artistic and truthful representation of this noble flower (full size); the size of the plate is 14x21 inches. It is mailed free to old customers, and to others upon the receipt of six cents.

Our Lotus Pond, near Bordentown, is one of the greatest botanical wonders in the United States, and is worth traveling many miles to see. The illustration on another page is a faithful representation. The flowering period covers about three months, but the height of the season is in August.

Our Southern California Garden. We have recently established a Water Garden at Los Angeles, California, where the tenderest Water Lilies flourish in the open air the entire year, and the climate favors the production of bulbs and tubers of a superior quality. Customers residing on the Pacific coast can now be supplied with home grown plants near at hand. Those residing in the South Atlantic states can have their orders filled from this point earlier in the spring than from New Jersey. My California address is given below.

The Novelties of this season are the new yellow Water Lily, *Nymphaea Marliacea chromatella*, the new Water Hyacinth, and the Water Snowflake, all of which we can highly recommend.

Cash With Order. All orders from unknown correspondents must be accompanied with the cash.

Mail and Express. In all cases where justice can be done to both goods and purchaser, plants will be sent by mail, postage paid. Dormant bulbs of the tender *Nymphaeas* and a few other aquatics can be readily sent in this manner, but the majority of our plants are sent by express, which is the most satisfactory way. "Extras" will be added to assist in defraying charges.

Our Prices for the bulbous and tuberous varieties are for those in a dormant condition. For plants in an advanced stage of growth, we reserve the right to charge according to size.

EDMUND D. STURTEVANT,

Also Box 404, Station C,
Los Angeles, California.

Bordentown, New Jersey.

"The Nelumbium tubers received from you are greatly superior to some which I received from China."—ABRAM DIXON, *Letherhead, England*.

"I have obtained plants from many places, including foreign countries, and have never had them arrive in such fine condition as those received from you. I have never made an investment that produced such fine results as the Water Lilies."—CHAS. SILENT, *Los Angeles, California*.

"The plants came in splendid condition."—MRS. ELKWOOD COOPER, *Santa Barbara, California*.

"The plants you so kindly sent me arrived, all of them in splendid condition."—S. COCKING, JR., *Yokohama, Japan*.

"You are certainly master of the art of packing."—GEO. F. WILSON, *Weybridge, England*.

"My Water Lilies are the center of attraction."—W. S. JAY, *Emporia, Kansas*.

"Almost everything in tin boxes came in perfect order, notwithstanding an unfortunate delay of ten days in Honolulu."—B. D. BOND, M. D., *Kohala, Hawaii, H. I.*

WATER LILIES.

[From the Atlantic Monthly.]



NEARLY every town has its Lily pond. Ours is accessible from the larger lake only by taking the skiff over a narrow embankment, which protects our fairy land by its presence. Once beyond it, we are in a realm of dark Lethean water, utterly unlike the sunny depths of the main lake. Hither the Water Lilies have retreated, to a domain of their own. A decline in business is clear revenue to Water Lilies, and the waters are higher than usual because factories are idle. But we may notice, in observing the shores, that peculiar charm of water, that, whether its quantity be greater or less, its grace is the same; it makes its own boundary in lake or river, and where its edge is, there seems the natural and permanent margin. And the same natural fitness, without reference to mere quantity, extends to its children.

"Before us lie islands and continents of Lilies, acres of charms, whole vast unbroken surfaces of stainless whiteness. And yet, as we approach them, every islanded cup that floats in lonely dignity, apart from the multitude, appears as perfect in itself, couched in white expanded perfection, its reflection taking a faint glory of pink, that is scarcely perceptible in the flower. As we glide gently among them, the air grows fragrant, and a stray breeze flaps the leaves, as if to welcome us. Each floating flower becomes suddenly a ship at anchor, or rather seems beating up against the summer wind, in a regatta of blossoms.

"Early as it is, the greater part of the flowers are already expanded. Indeed, that experience of Thoreau's, of watching them open in the first sunbeams, rank by rank, is not easily obtained, unless, perhaps in a narrow stream, where the beautiful slumberers are more regularly marshalled. In our lake, at least, they open irregularly, though rapidly. But this morning many linger as buds, while others peer up in half-expanded beauty, beneath the lifted leaves, frolicksome as Pucks or baby-nymphs. As you raise the leaf, in such cases, it is impossible not to imagine that a pair of tiny hands have upheld it, or else that the pretty head will dip down again and disappear. Others, again, have expanded all but the inmost pair of white petals, and these spring apart at the first touch of the finger on the stem. Some spread vast vases of fragrance, six or seven inches

in diameter, while others are small and delicate, with petals like fine lace-work. Smaller still, we sometimes pass a flotilla of infant leaves an inch in diameter. All these grow up from the deep, dark water—and the blacker it is, the fairer their whiteness shows. But your eye follows the stem often vainly into those sombre depths, and vainly seeks to behold Sabrina fair, sitting with her twisted braids of Lilies, beneath the glassy, cool, but not translucent wave. Do not start, when in such an effort only your own dreamy face looks back upon you, beyond the gunwale of the reflected boat, and you find that you float double—self and shadow.

"Let us rest our paddles and look around us, while the idle motion sways our light skiff onwards, now half embayed among the Lily pads, now lazily gliding over intervening gulfs. There is a great deal going on in these waters and their fringing woods and meadows. All the summer long the pond is bordered with successive walls of flowers. In early spring emerge the yellow catkins of the swamp willow, first, then the long tassels of the graceful Alders expand and droop until they weep their yellow dust upon the water; then come the Birch blossoms, more tardily; then the downy leaves and white clusters of the Medlar or Shadbush (*Amelanchier Canadensis* of Gray); these dropping, the roseate chalice of the Mountain Laurel open; as they fade into melancholy brown the sweet Azalea uncloses; and before its last honeyed blossom has trailed down, dying, from the stem, the more fragrant Clethra starts out above, the Buttonbush thrusts forth its merry face amid wild Roses, and the Clematis waves its sprays of beauty. Mingled with these, grow lower the Spiræas, white and pink, yellow Touch-me-not, fresh white Arrowhead, bright blue Vervain and Skullcap, dull Snakehead, gay Monkey-flower, coarse Eupatoriums, Milkweeds, Golden Rods, Asters, Thistles and a host besides. Beneath, the brilliant scarlet Cardinal-flower begins to palisade the moist shores; and after its superb reflection has passed away from the waters, the grotesque Witch Hazel flares out its narrow yellow petals amidst the October leaves, and so ends the floral year.

"There is no week during all these months when one cannot stand in the boat and wreath garlands of blossoms from the shores. These all crowd around the brink, and watch, day and night, the opening and closing of the Water Lilies. Meanwhile, upon the waters, our queen keeps her chosen court, nor can one of these

mere land-moving blossoms touch the hem of her garment. * * * Her humble cousin, the yellow Nuphar, keeps commonly aloof, as becomes a poor relation, though created from the self-same mud—a fact on which Hawthorne has beautifully moralized. Undisturbed, however, the Water Lily keeps her fragrant court, with few attendants. The tall Pickerel-weed (*Pontederia*) is her gentleman usher, gorgeous in blue and gold through July, somewhat rusty in August. The Water-shield (*Brasenia*) is chief maid-of-honor; she is a high-born lady, not without royal blood indeed, but with rather a bend sinister; not precisely beautiful, but very fastidious; encased over her whole person with a gelatinous covering, literally a starched duenna. Sometimes she is suspected of conspiring to drive her mistress from the throne; for we have observed certain slow water-courses where the leaves of the Water Lily have been almost wholly replaced by the similar but smaller leaves of the Water-shield.

“More rarely seen is the slender *Utricularia*, a dainty maiden, whose light feet scarce touch the water—with still more delicate floating white *Water Ranunculus* and the shy *Villarsia*, whose submerged flowers merely peep one day above the surface and then close again forever. Then, there are many humbler attendants, *Potamogetons*, or Pond-weeds. And here float little emissaries from the dominions of land; for the fallen florets of the *Viburnum* drift among the Lily pads, with mast-like stamens erect, sprinkling the water with a strange beauty, and cheating us with the promise of a new aquatic flower. These are the still life of this sequestered nook; but it is, in fact, a crowded thoroughfare. No tropical jungle more swarms with busy existence than these midsummer waters and their bushy banks.

GATHERING WATER LILIES.

“Every flower bears a fragrant California in its bosom, and you hesitate to leave one behind. But after the first half hour of eager grasping, one becomes fastidious, rather scorns those on which the wasps and flies have alighted, and seeks only the stainless. But handle them tenderly, as if you loved them. Do not grasp at the open flower as if it were a *Pæony* or *Hollyhock*, for then it will come off stalkless in your hand, and you will cast it blighted upon the water; but coil your thumb and second finger affectionately around it, press the extended fore-finger firmly to the stem below, and with one steady pull you will secure a long and delicate stalk. Consider the Lilies. All over our rural water-courses, at midsummer, float these cups of snow. They are nature's symbols of coolness. They suggest to us the white garments of their Oriental worshippers. They come with the white roses, and prepare the way for the white Lilies of the garden. The Water Lily comes of an ancient and sacred family. It has assisted at the most momentous religious ceremonies, from the beginning of recorded time.

“The Egyptian Lotus was a sacred plant; it was

dedicated to Harpocrates and to Nofr-Atmoo-Nofr, meaning *good*, whence the name of our Yellow Lily, Nuphar. But the true Egyptian flower was *Nymphaea Lotus*, though *Nymphaea caerulea*, Moore's “blue Water Lily,” can be traced on the sepulchers also. It was cultivated in tanks in the gardens; it was the chief material for festal wreaths; a single bud hung over the forehead of many a queenly dame; and the sculptures represent the weary flowers as dropping from the heated hands of *belles*, in the later hours of the feast. Rock softly on the waves, fair Lilies! your eastern kindred have rocked on the stormier bosom of Cleopatra. The Egyptian Lotus, was, moreover, the emblem of the sacred Nile, as the Hindoo species of the sacred Ganges; and both the one and the other was held the symbol of the creation of the world from the waters. The sacred bull, Apis, was wreathed with its garlands; there were niches for water, to place it among tombs; it was carved in the capitals of columns; it was represented on plates and vases; the sculptures show it in many sacred uses, even as a burnt offering; Isis holds it; and the god Nilus still binds a wreath of Water Lilies around the throne of Memnon. From Egypt the Lotus was carried to Assyria, and Layard found it among Fir cones and Honeysuckles on the later sculptures of Nineveh. The Greeks dedicated it to the nymphs, whence the name *Nymphaea*. Nor did the Romans disregard it, though the Lotus to which Ovid's nymph Lotus was changed *servato nomine*, was a tree and not a flower. Still a different thing was the enchanted stem of the Lotus eaters of Herodotus, which prosaic botanists have reduced to the *Zizyphus Lotus*, found by Mungo Park, translating also the yellow Lotus dust into a mere “farina, tasting like sweet gingerbread.” But in the Lotus of Hindostan we find our flower again, and the Oriental sacred books are cool with Water Lilies. The orb of the earth is Lotus-shaped, and is upborne by the tusks of Vesava, as if he had been sporting in a lake where the leaves and blossoms float. Having got thus far into Orientalism, we can hardly expect to get out again without some slight entanglement in philology.

“Lily pads. Whence *pads*? No other leaf is identified with that singular monosyllable. Has our floating Lotus leaf any connection with padding, or with a foot-pad? With the ambling pad of an abbot, or a paddle, or a paddock, or a padlock? with many-domed Padua proud, or with St. Patrick? Is the name derived from the Anglo-Saxon *paad* or *petthian*? All the etymologists are silent on the subject; Tooke and Richardson ignore the problem; and of the innumerable pamphlets in the Worcester and Webster controversy, loading the tables of school-committeemen, not one ventures to grapple with the Lily pad.

“The Sanscrit name for the Lotus is simply *Padma*. The learned Brahmins call the Egyptian deities *Padme Devi*, or Lotus gods; the second of the eighteen Hindoo Puranas is styled the *Padma Purana*, because it treats

of the 'epoch when the world was a golden Lotus,' and the sacred incantation which goes murmuring through Thibet is 'Ommani podme houm.' It would be singular, if upon these delicate floating leaves a fragment of our earliest vernacular has been borne down to us, so that here the school-boy is more learned than the savans.

"This lets us down easily to the more familiar uses of this plant divine. By the Nile, in early days, the Water Lily was good not merely for devotion, but for diet. 'From the seeds of the Lotus,' said Pliny, 'the Egyptians make bread.' The Hindoos still eat the seeds roasted in sand; also the stalks and roots. In South America, from the seeds of the Victoria (*Nymphaea Victoria*, now *Victoria regia*) a farina is made, preferred to that of the finest wheat—Bonpland even suggesting to our reluctant imagination Victoria-pies! But the European species are used, as far as we know, only in dyeing. Our own Water Lily has some strange peculiarities of structure. So loose is the internal distribution of its tissues, that it was for some time held doubtful as to which of the two great vegetable divisions, exogenous or endogenous, it belonged. Its petals, moreover, furnish the best examples of the gradual transition of petals into stamens—illustrating that wonderful law of identity which is the great discovery of modern science. Every child knows this peculiarity of the Water Lily, but the extent of it seems to vary with seasons and locality, and sometimes one finds a succession of flowers almost entirely free from this confusion of organs.

"Our readers may not care to know that the order of Nymphæaceæ 'differs from Ranunculaceæ in the consolidation of its carpels, from Papaveraceæ in the placentation not being parietal, and from Nelumbiaceæ in the want of a large truncated disc containing monospermous achenia,' but they may like to know that the Water Lily has relations on land, in all the gradations of society, from Poppy to Magnolia, and yet does not conform its habits precisely to those of any of them. Its great black roots, sometimes as large as a man's arm, form a network at the bottom of the water. Its stem floats, an airy four-celled tube, adapting itself to the depth, though never stiff in shallows, like the stalk of the Yellow Lily; and it contracts and curves when seed-time approaches, though not so ingeniously as the spiral threads of the Vallisneria, which uncoil to let the flowers rise to the surface, and then cautiously retract, that the seeds may ripen on the very bottom of the lake.

"The leaves show, beneath the magnifier, beautiful adaptations of structure. They are not like those of land-plants, constructed with deep veins to receive the rain and conduct it to the stem, but are smooth and glossy, and of even surface. The leaves of land vegetation have also thousands of little breathing-pores, principally on the under side: the Apple leaf, for instance, has twenty-four thousand to a square inch. But here

they are fewer; they are wholly on the upper side, and, whereas in other cases they open or shut according to the moisture of the atmosphere, here the greedy leaves, secure of moisture, scarcely deign to close them. Nevertheless, even these give some recognition of hygrometric necessities, and, though living on the water, and not merely christened with dewdrops like other leaves, but baptized by immersion all the time, they are yet known to suffer in drought, and apparently to take pleasure in heavy falls of rain.

THE ROYAL WATER LILY.

"We have spoken of the various kindred of the Water Lily; but we must not leave our fragrant subject without due mention of its most magnificent, most lovely relative, at first claimed even as its twin sister and classed as a Nymphæa. We once lived near neighbor to a *Victoria regia*. Nothing in the world of vegetable existence has such a human interest. The charm is not in the mere size of the plant, which disappoints everybody, as Niagara does, when tried by that sole standard. The leaves of the Victoria, indeed, attain a diameter of six feet; the largest flowers, of 23 inches—less than four times the size of the largest of our Water Lilies. But it is not the mere looks of the Victoria, it is its life which fascinates. It is not a thing merely of dimensions, nor merely of beauty, but a creature of vitality and motion. Those vast leaves expand and change almost visibly. They have been known to grow half an inch an hour, eight inches a day. Rising one day from the water, a mere clinched mass of yellow prickles, a leaf is transformed the next day to a crimson salver gorgeously tinted on its upturned rim. Then it spreads into a raft of green, armed with long thorns, and supported by a frame-work of ribs and cross-pieces, an inch thick, and so substantial that the Brazil Indians, while gathering the seed-vessels, place their young children on the leaves—*yrupe*, or water-platter, they call the accommodating plant. But even these expanding leaves are not the glory of the Victoria; the glory is in the opening of the flower.

"We have sometimes looked in, for a passing moment, at the greenhouse, its dwelling place during the period of flowering, and then stayed for more than an hour, unable to leave the fascinating scene. After the strange flower-bud has reared its dark head from the placid tank, moving it a little uneasily, like some imprisoned water-creature, it pauses for a moment in a sort of dumb despair. Then, trembling again, and collecting all its powers, it thrusts open, with an indignant jerk, the rough calyx leaves, and the beautiful disrobing begins. The firm, white central cone, first so closely infolded, quivers a little, and swiftly before your eyes, the first of the hundred petals detaches its delicate edges, and springs back, opening towards the water, while its white reflection opens to meet it from below. Many moments of repose follow—you watch—another petal trembles, detaches, springs open, and is still. Then another, and

another, and another. Each movement is so quiet, yet so decided, so living, so human, that the radiant creature seems a Musidora of the water, and you almost blush with a sense of guilt in gazing on that peerless privacy. As petal by petal slowly opens, there still stands the central cone of snow, a glacier, an alp, a jungfrau, while each avalanche of whiteness seems to last. Meanwhile a strange, rich odor fills the air, and nature seems to concentrate all fascinations and claim all senses for this jubilee of her darling. So pass the enchanted moments of the evening, till the fair thing pauses at last, and remains for hours unchanged. In the morning, one by one, those white petals close again, shutting all their beauty in, and you watch through the short sleep for the period of waking.

"Can this bright, transfigured creature appear again in the same chaste beauty? Your fancy can scarcely trust it, fearing some disastrous change; and your fancy is too true a prophet. Come again after the second day's opening, and you start at the transformation which one hour has secretly produced. Can this be the

virgin Victoria—this thing of crimson passion, this pile of pink and yellow, relaxed, expanded, voluptuous, lolling languidly upon the water, never to rise again? In this short time every tint of every petal is transformed; it is gorgeous in beauty, but it is "Hebe turned to Magdalen." But our rustic Water Lily, our innocent Nymphæa, never claiming such a hot-house glory, never dropping into such a blush, blooms on placidly in the quiet waters, till she modestly folds her leaves for the last time, and bows her head beneath the surface forever.

"Next year she lives for us only in her children, fair and pure as herself. Nay, not alone in them, but also in memory. The fair vision will not fade from us, though the paddle has dipped its last crystal drop from the waves, and the boat is drawn upon the shore. We may yet visit many lovely and lonely places—meadows thick with Violet, or the homes of the shy Rhodora, or those sloping forest-haunts where the slight Linnæa hangs its twin-born heads—but no scene will linger on our vision like this annual feast of the Lilies."

THE LOTUS.

"Love came to Flora asking for a flower
That would of flowers be undisputed queen;
The lily and the rose long, long had been
Rivals for that high honor. Bards of power
Had sung their claims. 'The rose can never tower
Like the pale lily, with her Juno mien.'
'But is the lily lovelier?' Thus, between
Flower factions ran the strife in Psyche's bower.
'Give me a flower delicious as the rose,
And stately as the lily in her pride—'
'But of what color?' 'Rose-red,' Love first chose.
Then prayed: 'No, lily-white, or both provide.'
And Flora gave the Lotus 'rose-red' dyed
And 'lily-white,' the queenliest flower that blooms."

—THE CENTURY MAGAZINE, January, 1884

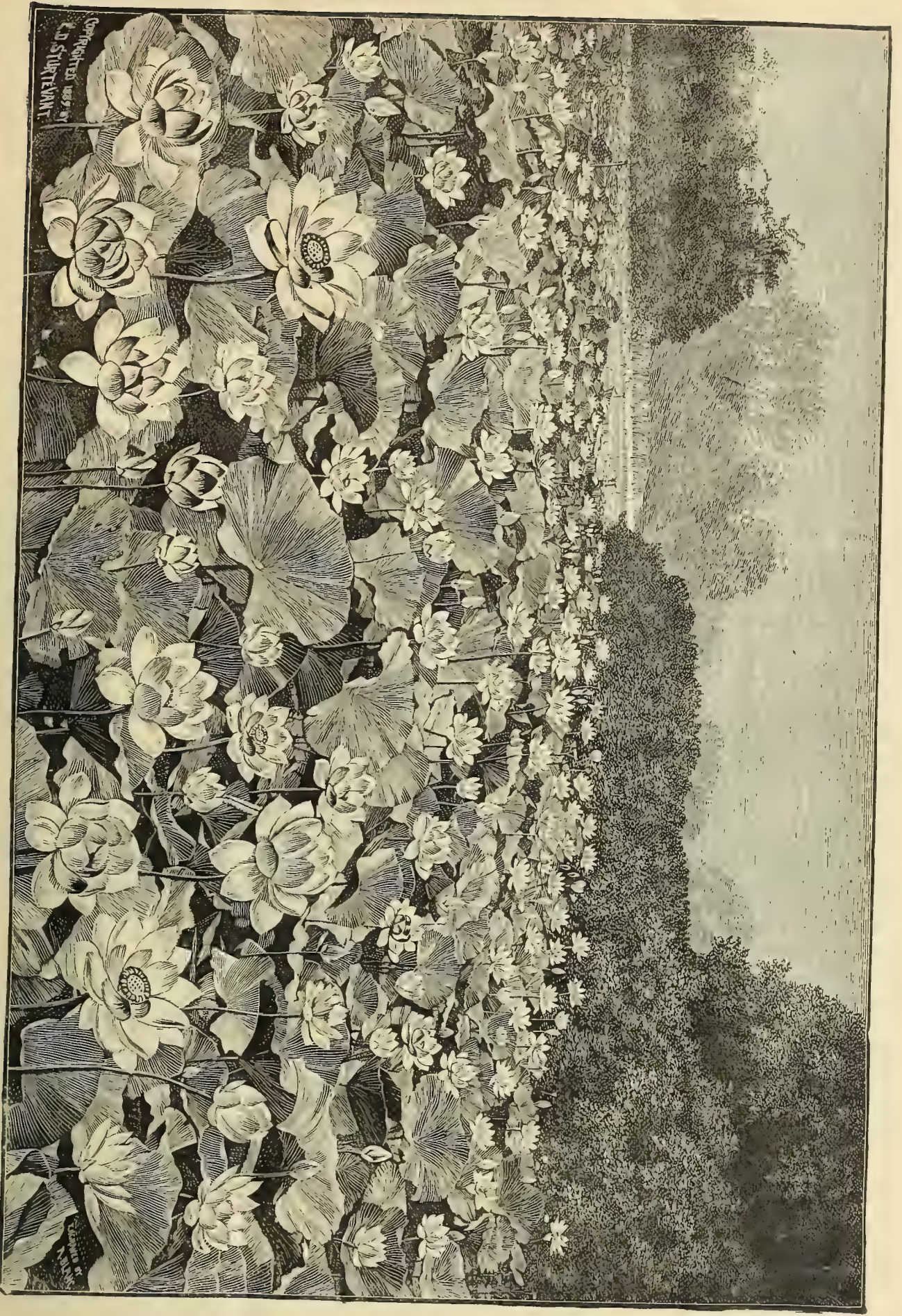
"If he who causes two blades of grass to grow where but one grew before is a public benefactor, so he who adds the Lotus to our meadows must likewise be so accounted."—DR. CHAS. C. ABBOTT.

The following letter and editorial are reprinted from *Garden and Forest*, April 10th, 1889

"The Oriental Nelumbium Naturalized in America.

"IN the early days of my enthusiasm for aquatic plants I read an item in a foreign horticultural journal stating that *Nelumbium speciosum* had been successfully grown in the open air and had withstood the winter unharmed in the 'Jardin des Plantes' at Paris. In January, 1876, while in that city, I made a search to ascertain the truth of the statement, and found an artificial basin five or six feet in diameter in which were standing the dead flower stalks and decaying foliage of the *Nelumbium*. There was one inch of

ice on the water of the pool at the time, and it was but natural to infer that the plant would prove hardy where lower temperatures prevail in winter than at Paris. During the next few years I cultivated the *Nelumbium* successfully in my garden here and proved its hardiness when its tubers are not exposed to actual freezing. I found that a temperature causing the formation of ten inches or more of ice on the water above the dormant tubers was no obstacle to successful cultivation. Having seen large ponds filled with masses of our native



Copyright 1887
by E. D. Sturtevant

E. D. STURTEVANT'S LOTUS POND, NEAR BORDENTOWN, N. J. FROM A PHOTOGRAPH.

species (*N. luteum*), a desire arose to see how this foreign floral treasure would behave under like conditions.

"Two miles from my present home is an artificial pond, a secluded corner of which was selected for the experiment. Many years ago this spot was rich meadow-land, where farmers were accustomed to cut hay. The soil is a dark, greasy clay, and since the formation of the pond, has been made richer still in vegetable matter by the deposit of sediment in time of freshets by the wash from adjoining hills. *Nuphar advena* was the principal aquatic plant growing there. By the courtesy of the farmer who owns the property the experiment was made, and about nine years ago a single plant of *N. speciosum* was placed in the centre of a little cove where the water is from one to two feet deep. It soon became established and began to spread in all directions, blooming profusely each year. One summer it was nearly destroyed by cattle from an adjoining pasture. They found the foliage a sweet morsel, waded in and ate it all down.

"In a year or two the plants recovered and went on making their marvelous growth, and during the past summer and autumn they showed a solid mass of magnificent foliage and bloom, covering three-quarters of an acre. Last August, at the height of the blooming period, about 500 of the beautifully-shaded pink flowers were open at once. In their last stages of expansion they measure from ten to thirteen inches in diameter. They stand from three to six feet above the water, and in some instances, flower-stalks pulled from their base in the mud measure eight feet in length. Multitudes of leaves are found twenty-four to thirty inches across, and one season I found a leaf which measured thirty-six inches in diameter. The tallest man is hidden from view when walking through the mass of foliage. Not content with remaining in the water, an occasional plant will creep a few feet out into the thicket of Alders and wild Roses on the bank, apparently satisfied with a moist soil without water on the surface. When the frosts of October arrived a few buds were caught still unexpanded.

"Such a tropical aspect does this plant here present that one would scarcely be surprised to see Palms and Bamboos growing upon the shores of the pond. Could similar pictures be reproduced in the parks of our large cities, they could not fail to attract the admiring attention of thousands of people.

"I believe that the day is not far distant when this so-called 'Sacred Lotus' and its beautiful varieties will be as universally cultivated and as popular in America as they now are in some eastern countries. I may here mention one of its habits which would seem to furnish an example of 'vegetable intelligence.' During the summer the slender rhizomatic stems spread horizontally in every direction, but at only a moderate depth in the soil. Upon the approach of autumn the growing points of these rhizomes descend to a much greater depth (sometimes eighteen inches), and there the tubers

are formed which lie dormant until late in spring, when an increase of temperature induces a new growth. This new growth immediately re-ascends to the normal level, and the process of horizontal growth is repeated. Is this not a design to preserve the tubers from freezing and the depredation of animals? The accompanying illustration was made from a photograph taken in August, 1888, and does not show the entire plantation.

Bordentown, N. J.

E. D. STURTEVANT.

"[We have more than once alluded to the great service rendered to American horticulture by Mr. Sturtevant in popularizing the cultivation of the finest aquatic plants in this country. A still greater service is his demonstration of the fact that the beautiful 'Sacred Lotus' can be naturalized here. Its hardiness having been demonstrated, there is now no reason why this Lotus cannot be made to cover shallow ponds from Cape Cod through all the coast-region of the middle or southern states; or why this beautiful plant may not become as conspicuous a feature in American life and art as it is in those of Japan, where, although doubtless introduced from continental Asia, it is as widely spread as any indigenous plant. If the Bordentown experiment proves to be the precursor of many thousands more, as it is sincerely to be hoped that it may, Mr. Sturtevant's name will deserve to live among those of men who have made valuable contributions to American civilization.

"As far back as written history or the picture-records of ancient peoples reach, the 'Sacred Lotus' may be found; and no other plant has played so prominent a part in the ceremonies of royal life, in the rites of religion, or the development of art.

"Many kinds of Water-lilies were familiar to the ancient Egyptians, and the name Lotus seems to have been given to them all. Among them were *Nymphæas*, analogous to our common white and yellow Water-lilies, and also a species with blue flowers (*N. cerulea* or *stellata*), and another which was either red or white with red-streaked sepals (*N. Lotus*). But the true Egyptian Lotus, the 'Sacred Lotus' of the whole east, is the plant with rosy flowers which Linnaeus called *Nymphaea nelumbo*, but modern botanists have placed in another genus and called *Nelumbium speciosum*. This no longer grows wild in the Nile, and, perhaps, was not a native of Egypt. It appears in early pictures, produced at a time when Egypt was practically shut off from the rest of the world; and if it was, indeed, an exotic, it must have been introduced in those primitive days when this part of the world was being peopled or re-peopled by tribal immigrations from the East. But there is nothing improbable in such a supposition. Tree-worship was one of the very earliest forms of religion, and where trees were adored certain flowers may well have been transported from place to place, together with such herbs and roots as had proved themselves possessed of healing properties. The Lotus seems to have been revered in India, as well as Egypt, from the dawn of history.

and it is not impossible that it traveled from the former country—where we know it is indigenous—to the banks of the Nile, at a time so remote that even Egyptians of the earliest historic dynasties may have believed in its local origin.

"The difference in habit between this plant and the *Nymphæas* will readily be appreciated from our illustration. " 'It is at least one-third larger,' says an observer who has studied it in Egypt, 'than our common Water-lily, from which it differs also in the behavior of the leaves and of the stems which bear the flowers. These do not float on the surface of the water, but rise above it to a height of from twelve to fifteen inches. The flower, which stands higher than the leaves, is borne upon a stalk which, instead of being soft and pliable like that of the Water-lily, has the firmness and consistency of wood. It has an agreeable smell, like that of Anise. In the bas reliefs the Egyptians are often seen holding it to their nostrils. The fruit, which is shaped like the rose of a watering pot, contains seeds as large as the stone of an Olive. These seeds, which were eaten green or dried, were called 'Egyptian Beans' by the Greek and Latin writers because they were consumed in such vast quantities in the Nile valley. * * Even the root was not wasted. According to the old historians, it had a sweet and agreeable taste.'

"Herodotus compares the seeds of the *Nymphæas* to those of the Poppy. They, too, were eaten, being pounded in a mortar and made into a kind of bread. But neither of these plants should be confounded with the Lotus, which formed the food of the so-called Lotophagi, in Ethiopia, and has been so widely celebrated for its Lethe-like effects by ancient and modern poets. This was the 'Lotus tree,' which Pliny says some persons identified with the *Celtis*, but which modern commentators believe to have been the *Rhamnus Lotus* of Linnæus, the *Zizyphus Lotus* of more recent botanists.

"The extensive thickets which the Lotus formed along the banks of the Nile are frequently pictured on Egyptian monuments, with men in boats hunting aquatic birds and animals among there crowded stems; and ancient writers tell us that popular festivals were held among these green and rosy water-groves. Constantly, when sacred ceremonies are portrayed, Lotus flowers are held in the hands of the chief figures. They were the symbols of generation, life, resurrection and immortality, and, therefore, consecrated to Osiris. The four genii of the future world are sometimes depicted standing upon them, and they likewise form a seat for the infant Horus, while historians tell us they were appropriately presented to the guests at funerals.

"In Assyrian and Persian sculptures the Lotus is almost as conspicuous, alternating with the Pine-cone as an accompaniment of the most solemn rites. In India, again, we find the same thing—constantly the Lotus occurs, and its sacred character is always apparent. Hindoo legends say that Brahma came forth from its

blossom, and Sri and other gods are sculptured sitting upon an open flower and holding buds in their hands. Buddha is likewise thus portrayed.

"Perhaps it was the spread of Buddhism which carried the Lotus to China and Japan. But from whatever place it came, and whatever time, it soon grew to be familiar and beloved as it had been at home. At every step in Japan one finds great tanks filled with the Lotus, and in many religious ceremonials it has its function, while the peculiar grace of its habit and its beauty of form and color in leaf and bud and flower and fruit, added to its religious significance, have made it chief among the artist's models. Countless works of Japanese art are based, palpably or remotely, upon the Lotus, from the delicate lines of the surface-decoration applied to some tiny object or the pattern on a woven stuff, to the great bronze vase in which the living plants are grown. Our illustration on page 175 shows such a vase or tank, which was brought to New York a few years ago by the late Mr. Edward Greey. Nothing could be more beautiful than its outline, faithfully copied from nature, yet admirably adapted to the chosen purpose; nor could a more splendid piece of decoration be imagined for a public park or the terrace near some stately mansion than such a vase filled—as we now know it could be—with the 'Sacred Lotus' of the East.

"But it is not alone in Japan that the Lotus has conspicuously entered into decorative and instructional art. Its portrayal as a sacred emblem was not the only manner of using it in Egypt. On page 170 will be found a reference to the vital part it played in the development of Egyptian architecture, while in all the decorative work of this country it is the dominant and sometimes almost the only motive employed. The leaf, the bud, the flower and the fruit-pod, all were conventionalized in the most artistic way, and woven into the most graceful and harmonious patterns. The same is true to a lesser degree of Assyria, Persia, India, Phœnicia and Cyprus. Lotus motives are of common occurrence on the Cypriote vases in the Metropolitan museum. Doubtless the sacred character of the plant had much to do with its universal adoption in art; but must not the artistic instinct have been keen among peoples who first chose so exceptionally beautiful a plant as a sacred emblem, and then adapted it so admirably to the painter's, the sculptor's and the architect's use?

"The subject of architectural development is too wide and complicated to be here examined. But we may at least briefly say that some writers believe that Lotus-forms, starting from Egypt, vitally influenced in later ages the course of Assyrian and even Greek architecture. They believe, for example, that the so-called palmettes, rosettes and anthemions of the Greeks were derived not from the Palm-tree, but from the Lotus, and that even in the Ionic capital we may see a conventionalized reproduction of its downward curling sepals or petals.—ED.]"

THE WATER LILY BASIN.

Although Water Lilies may be cultivated in tubs, they may be grown to much greater perfection if allowed plenty of room, especially the larger-growing tropical species. Those who wish to cultivate a number of kinds and have complete success, should build a tank about twenty by thirty feet, and two feet deep. If sunk entirely in the ground it would be more easily protected from frost in cold climates. But it may be partially sunken, and the soil which is taken out used as an embankment around the outside, sloping it up to the top. I prefer that it should be sunk to the level of the surrounding surface, for the reason that the banks can be made more ornamental. It may be built of either brick or stone. The bottom may be laid with rough stone, cobble-stone, or old brick bats, and grouted with cement. Or, if the soil is of a firm nature, a thick coat of cement alone may be spread upon it. This latter plan has been perfectly successful with us, though we consider a concrete bottom preferable. The walls should be nine inches thick, laid in cement, and, in cold climates, made to slope outward from the bottom. If it is desired to grow *Nymphaea Devonensis*, or similar kinds, to full size of leaf and flower, then it will be necessary to sink a pit in the center, one foot deep and four feet square, to hold soil for them. Provide means for emptying the tank of water, when desired; also, a waste-pipe, near the top, for overflow. After the walls have been built, and the bottom laid and grouted, the whole must receive an additional coat of cement. About four feet from each end of the tank, build a partition wall about twelve inches high. Bricks laid on edge will do, if laid in cement. These spaces can be cut in two by another partition. The compartments thus formed are for the purpose of confining the roots of the different kinds of Lotus within proper limits, and for planting those kinds of *Nymphaea* which do better in such a position. The remaining portion of the tank can be taken up with pots and large, shallow boxes, which will be movable at will. After the cement has properly hardened, fill the compartments and boxes with soil, and cover with an inch or two of clean sand. Fill the tank with water, and let it get well warmed before planting anything tender. As warm weather approaches, run a stream of fresh water in, for an hour or two each day, to prevent stagnation. When the surface of the water is covered with leaves, there is less tendency in this direction, and all that seems to be necessary is to replace what is lost by evaporation.

The Lily tank must be placed in a warm and sunny

position, for these plants will not do their best unless the water is thoroughly warmed. On the north side may be a border filled with Musas, Cannas, Bamboos, Ornamental Grasses, Caladiums, etc., which form a fine back-ground for the Lilies, and give the whole a tropical appearance.

In such a tank as above described, the tenderest species named in this catalogue may, in this latitude, be planted out by the 10th of June, and remain until the frosts of autumn appear. If it is desired to enjoy the longest possible season of bloom in the open air, then the Lily pond may be located near a greenhouse, and some connection made with the hot-water boiler. Our manner of doing this is to extend the hot-water pipes (both flow and return) from the boiler to the tank, and reaching a few inches inside of the wall. The end of these pipes are left open, and when extra heat is wanted a fire is kept in the boiler. The circulation being constant between tank and boiler the water in the tank may thus be warmed early in the spring, the tender Lilies planted out earlier, and thus earlier bloom is the result. Fire heat can be discontinued as soon as the summer sun begins to do its work. The season of bloom can be prolonged in the autumn in the same manner.

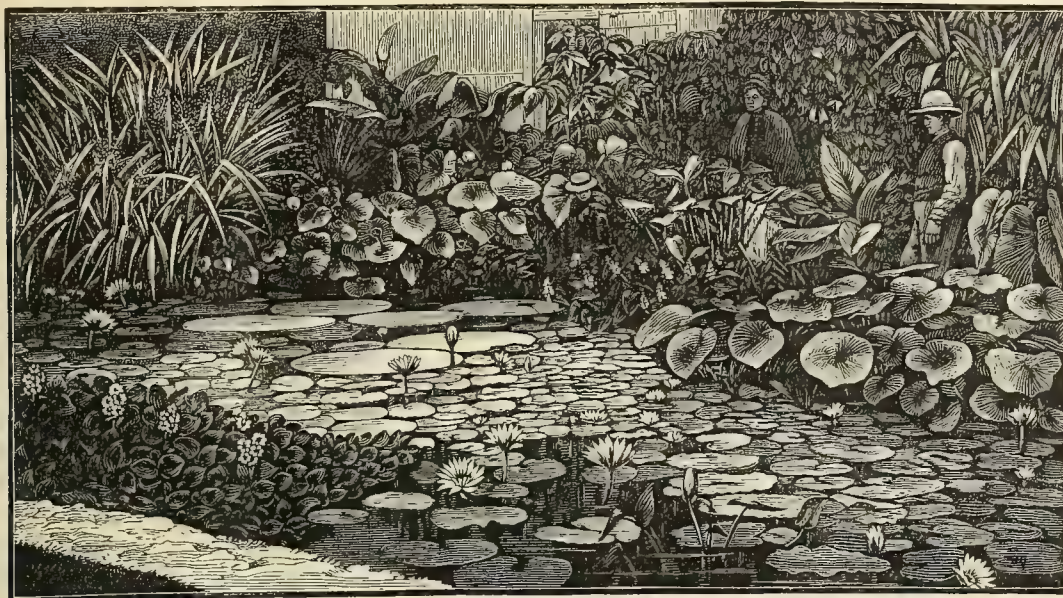
For the protection of the tank in the winter, place planks or boards around the edge, in such a manner as to cover a space two or three feet in width all around, that is, over the water, and cover them with a thick layer of leaves or litter. This will help to keep the ice from forming at the edge, and consequently from expanding too much and cracking the walls. Another plan is to drain the water entirely from the pond, and cover with a thick coat of leaves. Any one having a large factory could place a Lily pond near it, so that the waste steam or hot water (if free from chemicals or filth) might be utilized for keeping the water warm, and from freezing in winter. It may be asked, "Why all this trouble and expense? Why not grow Lilies in ponds with a bottom of natural earth?" We answer, that for hardy kinds this is undoubtedly a good plan, and very fair success may be had in the same way with the tender kinds; but in a pond with a cement bottom the water is more readily heated by the sun, and retains its heat better.

An Ideal Water Garden.

I will add here a few words upon the 'possibilities' of aquatic gardening. One argument in favor of cultivating tropical Lilies in open air is, that larger leaves

and flowers are obtained, and in case of the colored kinds, greater depth of color than under glass. Another argument is, the grand effect which may be produced on the lawn or in any part of the pleasure ground. Let us suppose that you wish to have an aquatic garden, fifty, sixty, or a hundred feet in diameter. We will not build it in the stiff form of a circle or oval, but the outline shall be irregular, with here and there a small bay, across which we throw a rustic bridge to a miniature peninsula. Somewhere on the margin we will build a rustic summer-house. It shall be a two-story affair, as sometimes we shall want to view our pets from an elevated position, for, unlike our fellow creatures, they smile upon us when we look down upon them. If we have a rocky ledge in our grounds, let us place our pond near it. Now, let us suppose that all has been planted, established, and come to midsummer perfection. Some morning, before the night blooming Lilies have begun to take their mid-day sleep, let us as-

thirty inches in diameter. Let us descend and walk along the border of our little lake. Here is a plantation of the lovely *Nymphaea azurea* appearing like a piece of blue sky dropped down from above, and here also is *Nymphaea Zanzibarensis* clad in robes of "royal purple," fit color for kings or queens to wear. Next is the charming new yellow variety, *Nymphaea Marliacea*; and our own sweet Water Lily is not forgotten, for it is here in masses. Associated with it are its charming new rose-colored variety, *Nymphaea odorata rosea*, and the delicate pink-tinted one. Here are *Nymphaea candidissima* and *Nymphaea alba rosea*, with their waxy petals, similar in color to some others, but having their own distinctive merits and attractions. The favorite Calla of our winter gardens lifts its white trumpets towards the sky, and numerous smaller flowered aquatics are found in profusion along the edge of the water. The Water Poppy in masses of yellow, the Water Hyacinths in clouds of rosy-lilac and lavender,



A WATER GARDEN OF MODERATE SIZE.

cent the low tower and take a view of the picture. There beneath us, is the noble *Nymphaea dentata*, covering a space twenty feet in diameter, some of its leaves two feet across, and its milk-white flowers twelve inches across; there is the grand *Nymphaea rubra*, with its immense cups of glowing color; and there, queen of them all, is *Nymphaea Devoniensis*, surpassing in brilliancy of flower, if not in size of leaf, the famous *Victoria regia*. Then come groups of these same Lilies, planted more thickly, and though the flowers are smaller, yet they are more numerous and just as brilliant. Yonder a little bay is filled with Egyptian Lotus, its pink and white flowers, on stalks three feet above the water, looking like immense tulips. Next is a mass of American Lotus, with its sulphur-yellow flowers; some of its floating leaves have strayed out into the open space, and are

make daily contribution to the floral procession. Coming around to the Lotuses again, we find growing near them, in shallow water, great clumps of the Egyptian Papyrus, with its plummy heads on stalks six feet high. Now let us look at some of the plants which associate well with water, and help form a background for our picture. Scattered along the margin we find groups of ornamental grasses, Eulalias, Erianthus, and Pampas Grass. Yonder, in our little peninsula, stands a noble Banana (*Musa ensete*), twelve feet high. Farther on is a clump of the tall Bamboo (*Arundo Donax*), and its variegated variety. There are groups of Cannas, and a large Palm, brought from the greenhouse to spend the summer in the open air. Another stately plant is *Alocasia arborea*, with a tree-like trunk and fine, large leaves. What is this great-leaved plant, near the

water's edge? It is *Gunnera scabra* (the Giant Rhubarb), with leaves six feet in diameter. Now do you wish to give your friends a glimpse of fairyland? Then illuminate your grounds, and invite them to an evening fête or garden party. The Lotuses and hardy Lilies have closed their flowers, but the night blooming Water Lilies offer us a feast for the eyes at night. Place large lamps, with reflectors, in such a position as to throw a powerful light directly upon the flowers—or, perhaps, Edison's magic lamps are available, and you suspend a number of them in mid-air over the water. Now the red Lilies fairly glow with color, and are more beautiful than by daylight. The water is like a mirror, and in its depths you behold another glorious picture—a perfect image of the flowers themselves. The large, star-like white ones keep company with the red in their night watches, and are not unworthy companions for them. Look around at the floating leaves, the numerous buds which will open with to-morrow's sun, the tall shields of the Lotus, the rich, tropical foliage on the banks, the rustic arbor covered with myriads of the silvery blossoms of the night-flowering *Ipomæa*, and tell me if this is not a fairy scene! And having taken a view of the Water Lily garden by daylight and by lamplight, will you not acknowledge that in all that is really beautiful it far surpasses the most elaborate exhibition of carpet bedding?

Perhaps you will say that this is a fancy sketch. Our answer is, that it has been so far realized that we do not hesitate to place such a garden as we have described among the list of "possibilities of horticulture" in America.

Soil for Growing Aquatic Plants.

The best soil for growing all kinds of aquatic plants in gardens we have found to be good, rich loam, and the best decayed stable or cow manure, in equal quantities, with the addition of about one pound of bone meal to a wheelbarrow load of the compost. Leaf-mould or fine black peat can no doubt also be used to advantage. Rich mud from the bed of a pond or sluggish stream will answer in place of the loam, but I do not consider it essential. The compost should be well mixed, placed in the tank, and covered with about an inch of good, clean sand to keep the manure from rising; then let in the water several days before putting in the plants.

The soil for the *Nelumbiums* should be heavy loam, or heavy, greasy clay, well enriched, as for all other aquatics. They will not flourish in sand or sandy peat.

Water Lilies in Tubs and Cement Basins.

A good degree of success may be obtained by planting them in large tubs or half-barrels in the open air, either on the surface or sunk in the ground. They should be placed where they receive the full benefit of the sun for at least the greater portion of the day. If for the whole day, so much the better. Fill them about half full of the compost recommended for all aquatics.

The large growing kinds would do better in large half-hogsheads or tierces sawed in two.

A very effective and inexpensive plan is to arrange the tubs in connection with a rockery, a large tub in the center being placed somewhat higher than the rest and connected by pieces of rubber hose, so that the overflow from the large tub runs from one to the other, so changing the water in all. Oil barrels make good tubs.

The space around the tubs is filled with good rich compost, held in place by large stones, in which foliage and flowering plants, such as tuberous-rooted *Begonias*, *Sedums*, *Caladiums*, *Palms*, etc., are planted. The effect produced in this manner is really beautiful.

The next best arrangement for growing aquatics is to build of bricks and hydraulic cement a basin two feet deep and six feet in diameter, either round or square. This can be sunk in the lawn in a sunny position, or on the south side of a building or fence. If convenient, provide means for emptying the tank from the bottom, and a waste-pipe near the top for over-flow, so that fresh water can be run in occasionally to prevent stagnation. Such a tank would need to be well protected from severe frost in winter. Aquatics may also be grown in the basin of a fountain, but they will not flourish if the spray is allowed to fall upon the leaves. Water enough to keep that in the basin fresh may be allowed to run in, but no more, as that would lower the temperature too much.

Enemies of Aquatic Plants.

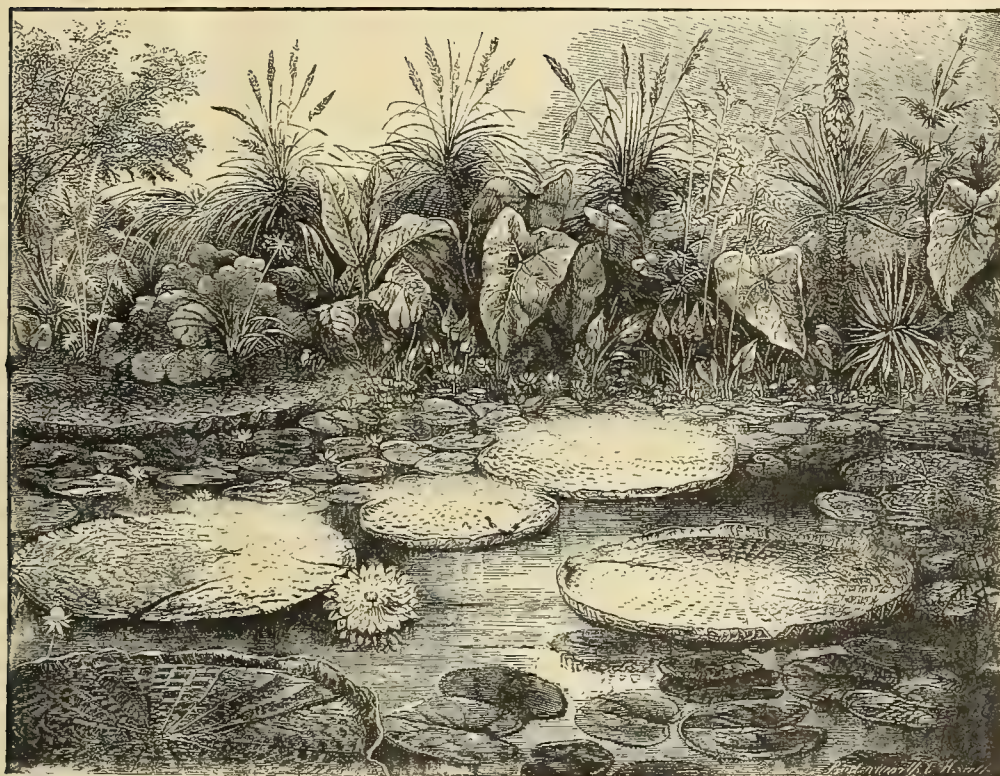
The conditions which we recommend for successfully growing tropical aquatics (*i. e.*, still, warm water, and rich compost) favor the growth of a low form of vegetable life called *conferva*, or green scum, which becomes very unsightly and troublesome unless eradicated. As the result of several years' experience, we are quite positive that if an abundance of Gold-fish are kept in the tank or pond, there will be no trouble in this direction. Other kinds of fish which are vegetarian in habit, might, perhaps, answer as well, but the German Carp is not to be recommended for tanks kept solely for the choicer varieties of aquatics, on account of their propensity for rooting in the mud and feeding upon the fibrous roots which proceed from the rhizomes of the Lilies. Should it be determined to keep a few German Carp in the Lily Garden, it will be necessary to place whole pieces of roofing-slate or large pebbles on the soil around the crowns of the tender *Nymphæas*.

Innumerable kinds of aquatic insects breed in the water, and some of their larvæ prey upon the leaves of the Lilies, but the common water-snail is the greatest enemy of aquatic plants. The Gold-fish assist very materially in destroying these larvæ and snails, but we have found a complete preventive of injury to the foliage from this source, by keeping in the tank, in addition to the Gold-fish, some of the common spotted Sun-fish. They are carnivorous in habit and very alert and active. Moreover, it is impossible for mosquitoes to

breed in a Water Lily basin in which abundance of the above named fish, or those of similar habit, are kept. Thus one objection to locating these tanks or ponds in the vicinity of the dwelling house is removed. Their beautiful appearance, and the ease with which they may be taught to feed from the hand (though it must not be done too frequently) make them charming adjuncts to the Water-Garden. If the tank is two feet or more in depth, they can be left in it all winter with perfect safety in this latitude.

Sometimes, toward autumn, brown aphides, or plant-lice, become troublesome on the Lily leaves. A somewhat new insecticide, which any one can prepare, has proved effectual with us. It is called the kerosene emulsion, or kerosene butter, and is prepared as follows: Take two parts of kerosene and one part of thick, sour milk; warm the latter (to blood heat only); put the two liquids together, and agitate violently with

a greenhouse syringe or a force-pump. They will soon completely unite and form a white soapy mass. This kerosene butter mixes readily with tepid water. One part of the butter should be thoroughly mixed with fifteen parts of water and applied to the infested leaves with a syringe. With us, one application entirely destroyed the insects, and without any injury whatever to Nymphæas. A weaker solution of the emulsion must be used on any plants which are found to be injured by the proportion above given. Experience will be a guide in this matter. Very few applications of the remedy will be needed during the season. Nelumbium leaves are injured by the application of kerosene. Tobacco water applied with a syringe is a good means for destroying aphides on these. Persian insect powder and "Buhach" are also safe and effective for use on Nelumbiums.



THE VICTORIA REGIA.

DESCRIPTION OF VARIETIES.

VICTORIA REGIA.

This giant Water Lily of the river Amazon is the grandest of all aquatics. That it may be successfully grown and flowered in the open air in this latitude, we have proved beyond a doubt, having done so for several seasons past. By this plan, it is treated as a tender annual. In winter, or early spring, seeds are placed in water, kept uniformly at a temperature of from 80 to 90 degrees. After germinating, they are potted and shifted on, as they require it. Early in June a plant is placed in a bed of very rich soil in a tank, fully exposed to the sun, and which can be artificially heated until hot weather sets in. It produces leaves six feet across, one plant covering a space thirty feet in diameter. The flowers are from twelve to sixteen inches across. The first night that they open they are a lovely white, and emit a delicious perfume, resembling that of pineapples, which is often perceptible some rods distant. The second night the flowers have changed to pink and have lost their perfume. In the southern states it may be grown with complete success in open ponds. Plants \$10 each. Fresh and perfect seeds 50 cents each, \$5 per dozen.

VICTORIA RANDI.

(New Crimson-Flowered Victoria Regia.)

Since the discovery of the original species, many years ago, no new variety has appeared until now. We had the honor of successfully growing and flowering this novelty in 1886, it being its first appearance in this country. It was discovered and introduced by Edward S. Rand, Jr. of Para, Brazil, through whom we obtained the original seeds. It differs from the original Victoria in the following particulars: The whole plant is of more robust habit, the young leaves of a darker bronzy color. In the old variety the vertical rim of the leaf is seldom more than three inches high. In the new one this vertical rim on well-grown plants is five inches, and sometimes six inches high, giving the plant a most striking and novel appearance. Leaves are produced six or seven feet in diameter. In the old variety the flowers are white on first opening, changing on the second day to rosy pink. In the new variety the flowers are also white on the first day, but on the second day they turn to a deep crimson color. Price of plants, \$10 each. Seeds, \$5 per dozen.

NIGHT-BLOOMING WATER LILIES.

Unlike our wild *N. odorata*, the following five beautiful kinds open their flowers at night, beginning about eight o'clock and remaining expanded until about ten the next morning, each flower opening three nights in succession. They stand on strong foot-stalks ten or twelve inches above the surface of the water. If given the right conditions as to soil, temperature, etc., they will begin to bloom in about forty days after being put out and continue to be constantly in bloom until cold weather. They all require the same culture and treatment. Their tubers are about the size of a hickory nut or walnut, but make a most astonishing growth in a single season. In spring they should be placed in small pots with good loam or ordinary greenhouse potting soil, and immersed in water, kept at 80 degrees, to start them into growth. If you are satisfied to have flowers from four to six inches in diameter, then, when warm weather arrives, shift them into large earthen pans or tubs, and place them outdoors, or keep them in a greenhouse, according to the latitude in which you live. If the finest specimens are desired, then, as early in summer as the water becomes warm enough for bathing with comfort, plant them out in a Water Lily tank, in large beds or wooden boxes filled with the compost recommended for aquatics. In the autumn, around the old plant, may be found hard nut-like tubers. These are the best for wintering. They ripen and shed their leaves, when they may be placed, several together, in a pot of soil or clean sand, and the pots immersed in water, kept at a temperature of about 60 degrees the entire winter. Lower than this may do, but we have found this the safest. Monster flowering crowns are valueless for wintering over, being sure to decay. If you wish to grow them in a pond with a bottom of natural earth, they must be first planted in large boxes or half-barrels filled with the prepared compost, and sunk where the water is two or three feet deep. In the southern states this will not be necessary, if the mud is very rich, but do not put a dormant bulb at once in deep water. Let it first get a good growth in a pot, placed in shallow water. The day-blooming tender *Nymphæas* are managed in much the same way as the night-blooming ones, except that they do not increase by suckers, and the old plants may be kept over from year to year. Dormant bulbs are easily sent by mail from March to December.



NYMPHÆA DEVONIENSIS.

NYMPHÆA DEVONIENSIS.

This is one of the choicest, if not the very choicest, Water Lily in cultivation. Under the liberal treatment which we recommend for producing the finest specimens, in one season a single plant will cover a circle twenty feet across, with leaves twenty-five inches in diameter, and flowers twelve inches from tip to tip of petals. If confined in pans, tubs, or boxes, the flowers are smaller, but otherwise just as fine. The leaves are rich green, with serrated edges and occasional brown blotches.* No person can form an adequate idea of the beauty of a red Water Lily until they have seen one of these gorgeous blossoms. They are rosy red, with scarlet stamens, glowing by lamplight with indescribable color. Price, \$2.50 each.

NYMPHÆA STURTEVANTI

(*New Semi-Double Red Water Lily.*)

This variety, which originated in our establishment, has foliage of a beautiful bronzy color, sometimes almost crimson. Its flowers are very large, having a greater number of petals than *Nymphaea Devoniensis*, and a more graceful cup-shaped form than that variety. They are a beautiful rosy-red color. This is a very choice variety, but not so free flowering as the others. In artificially heated water it comes to magnificent perfection. \$5 each.

NYMPHÆA RUBRA.

This magnificent species is a native of India, and one of the parents of *N. Devoniensis*. The picture of the latter gives a good idea of *N. rubra*, except that the flowers are a little more cup-shaped, and their petals somewhat broader. Their color is also a brilliant red, sometimes of a deeper shade than *N. Devoniensis*, and both foliage and flowers attain nearly the same size as that variety, if given the same treatment. The foliage is quite distinct, being of a rich brown color, turning, when old, to gold and crimson, like autumn leaves. \$3 each.

NYMPHÆA DENTATA.

This species is a native of Sierra Leone, and has white flowers with petals expanding horizontally, making them star-shaped. They have an agreeable odor, but not as sweet as our native Lily; the leaves are rich green, with serrated edges. With ordinary culture, flowers will be produced six or seven inches across; but give them plenty of room and rich soil, and both foliage and flowers will be as large as those of *N. Devoniensis*. \$2.50 each.

NYMPHÆA LOTUS.

This is supposed to be the typical species of the class of Water Lilies such as *N. dentata*, *N. Devoniensis*, etc.. It has large and beautiful white flowers, similar in form to *N. rubra*. \$2 each.

GENERAL LIST OF TENDER AQUATICS.

The *Nymphaeas* described below open their flowers in the day-time like the common Water Lily. They bloom constantly through the summer in this latitude, and till past the holidays in southern California and Florida. If lifted and kept in a warm greenhouse, they will flower through the winter. Small bulbs in a state of rest should be wintered in water kept at a temperature of 50 to 60 degrees.

NYMPHAEA SCUTIFOLIA.

(*N. caerulea*, or *cyanea*.)

The Lilies cultivated under these names are of a beautiful shade of lavender blue (not a deep blue), about three or four inches across, but when the plant is given abundance of room and rich soil the flowers will be much larger, and of a decidedly deeper tint. They are very fragrant, the perfume being entirely distinct from that of *Nymphaea odorata*. It is an old and popular variety. \$2 each.

NYMPHAEA GIGANTEA.

(*Australian Water Lily*.)

This rare species, when well grown, produces leaves two feet in diameter and flowers six to ten inches across. The color of the latter is a lovely purplish blue, shading to nearly white in the center; quite distinct from any other blue lily. The yellow stamens are also distinct, being abundant, slender and curled in form. This is a charming and desirable free-blooming variety. Culture the same as the Zanzibar varieties. \$5 each.

NYMPHAEA ZANZIBARENSIS.

(*The Royal Purple Water Lily*.)

This new species from Africa was first flowered in this country by us in the summer of 1882. In September, 1883, the Massachusetts Horticultural Society awarded it their Silver Medal. It is, unquestionably, the deepest colored and finest of all blue Water Lilies known, and some European horticulturists declare it to be the finest of the whole family. It is of a shade of blue so deep that it is not unreasonably called purple. Some parts of the flower are of the color of *Lasiandra macrantha* (a greenhouse plant.) It has the same fragrance as *N. caerulea*, and even when grown in small tubs or pans, produces larger flowers than that variety. Under the treatment given it in our Water Lily garden the flowers attain a diameter of twelve inches, and the leaves of two feet. It blooms constantly until frosty weather, and may be flowered in winter as described above. We guarantee our stock of this grand lily to be the true dark variety. Strong flowering bulbs, \$5 each.

NYMPHAEA ZANZIBARENSIS AZUREA.

We offer under this name strong-flowering bulbs, raised from seed of the true *N. Zanzibarensis*, which they are like in every respect, except that the color of the flowers is a shade lighter, being of the richest deep azure blue, far surpassing *N. caerulea* or any other blue Lily except the true *N. Zanzibarensis*. They are of the largest size and freely produced the entire year if the proper temperature is maintained. No collection is complete without this variety. \$2.50 each.

NYMPHAEA ZANZIBARENSIS ROSEA.

This is like *N. Zanzibarensis* in every respect, except that the flowers are of a deep rosy pink color. The outside of the sepals is of a lively green, forming a beautiful contrast with the rosy petals. \$4 each.



THE WATER LILY

**LIMNOCHARIS HUM-
BOLDTII.**

(*The Water Poppy.*)

A charming and easily cultivated plant, with oval floating leaves, and flowers of a bright lemon color with black stamens. The flowers stand a few inches out of water, and are produced freely during the entire season. Easily grown in a tub, but better still in the Water Lily garden, planted in a box or a tub, which must be elevated so that the plants may grow in shallow water. Wintered in a greenhouse. 40 cents each.

**SAGITTARIA MONTEVE-
DIENSIS.**

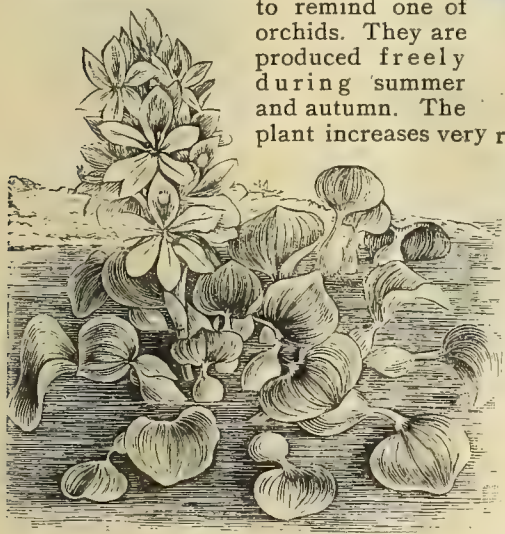
This is a giant compared with our native Arrowheads, which it resembles in the form of its foliage and flowers. It grows to a height of four feet, with leaves fifteen inches long. The flowers are produced abundantly on spikes three feet high, each bloom being two inches across, pure white, with a purple spot at the base of each petal. It should be wintered in the greenhouse. 50 cents each.

**EICHHORNIA CRASSIPES
MAJOR (PONTERIA).**

(*The Water Hyacinth.*)

The leaves of this charming plant are borne on curious swollen stems, which at first sight appear like those of a pitcher plant. On examination, these stems prove to be filled with delicate spongy air-cells. It is the nature of this plant to float around on the water, its large cluster of hairy roots hanging downward under the surface. The blossoms are of a beautiful rosy lilac color, produced in large spikes like a Hyacinth, as shown in our illustration. The delicacy of the flowers is such as to remind one of orchids. They are produced freely during summer and autumn. The plant increases very rapidly and soon

forms a large mass, appearing like a bed of Hyacinths. It flowers best if grown in two or three inches of water, with rich soil for the roots to take hold upon, or if crowded and matted together when floating in deep water. It will also flower in a tub partly filled with soil, covered with water. Wintered in a warm greenhouse. 40 cts. each, \$2 half-dozen.



WATER HYACINTH, SHOWING HABIT OF PLANT.

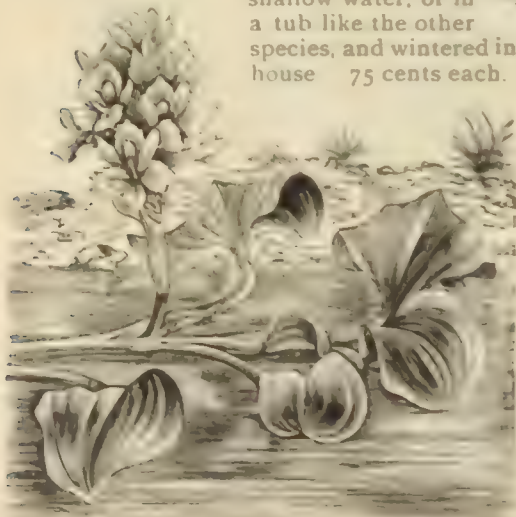
WATER HYACINTH,
NATURAL SIZE.
(*Eichhornia
Crassipes Major.*)

OUVIRANDRA FENESTRALIS.*(The Lattice-Leaf Plant.)*

Though by no means a new plant, it is extremely rare in this country. We copy from "Stove and Garden Plants," by B. S. Williams, this description: "It is popularly known as the Lace-Leaf or Lattice-Leaf, and is one of the most singular plants in existence. The leaves are from six to eighteen inches in length, and from two to four inches in breadth; oblong, with an obtuse apex, and spreading out horizontally beneath the surface of the water. They are of a dark olive green color, and consist of a strong midrib and what would be called the primary nerves of an ordinary leaf, and thus present the appearance of a beautiful piece of network, or of a skeletonized leaf—indeed, it is a veritable living skeleton. The flowers are inconspicuous." Native of Madagascar. It should be grown in a pan filled with rich soil, as for Water Lilies. The pan should be placed in a tub of water, and great care taken to keep the water sweet and the leaves of the plant clean. It is generally kept in a warm greenhouse the entire year. \$5 each.

EICHHORNIA AZUREA*(PONTEDERIA).**(Blue Water Hyacinth.)*

This choice novelty was introduced by us in the spring of 1890. As will be seen in the cut, the flowers closely resemble those of *E. crassipes major*, but the edges of the petals are delicately fringed. The color is an exquisite shade of lavender blue. The center of the flower is a rich deep indigo blue, with a bright yellow spot upon the blue. It proved a most satisfactory plant in our basin the past summer, flowering continuously throughout the season. Its habit is to branch freely and creep in all directions like a Verbena. It should be sown in rich soil and quite shallow water, or in a tub like the other species, and wintered in a warm greenhouse 75 cents each.



BLUE WATER HYACINTH, SHOWING MANNER OF GROWTH.

EICHHORNIA AZUREA.
NATURAL SIZE.

These Eichhornias have been offered under the name of "Orchid Water Lily," which is rather appropriate, as they resemble some of the finer orchids. They are not connected in habit, however, with Orchideæ.

LIMNOCHARIS PLUMIERI.

An erect-growing plant, standing one to two feet out of the water, with elliptical leaves four to six inches long, and of a rich velvety green. Flowers, straw color. 75 cents each

MYRIOPHYLLUM PROSERPINACOIDES.

(*Parrot's Feather.*)

This novelty we offer on account of the exquisite beauty of its foliage. It prefers shallow water, sending its stems creeping along on the surface, forming a mass of lovely soft green color. The leaves are arranged in whorls along the stem, and are as finely divided as the most delicate fern. The ends of these creeping stems stand erect, forming beautiful tufts or tassels. The plant is hardy if the stems lie in deep water. It can be easily kept in a pan or tub, placed in a cool greenhouse, where it forms a very pretty object in winter. It might also be grown in a water-tight hanging basket, with a pretty effect as a parlor or house ornament. 25 cents each.

LIMNANTHEMUM INDICUM.

(*Water Snowflake.*)

In this exquisite novelty the famous chrysanthemum, "Mrs. Alpheus Hardy," has a rival in miniature. It has attracted the admiration and wonder of every visitor the past season. In growth, the plant resembles a water lily, with leaves from three to five inches across. The flowers are produced upon the stem of the leaf, and are about as large as a fifty-cent piece, as shown in the engraving. They are white, and the upper surface of the petals is covered with a delicate fringe, giving them the appearance of crystal, star-shaped snowflakes. They are produced freely the whole season. It may be cultivated in the same manner as the tender water lilies, either in a water garden or a tub, and should be wintered in a greenhouse or cellar. \$1 each.

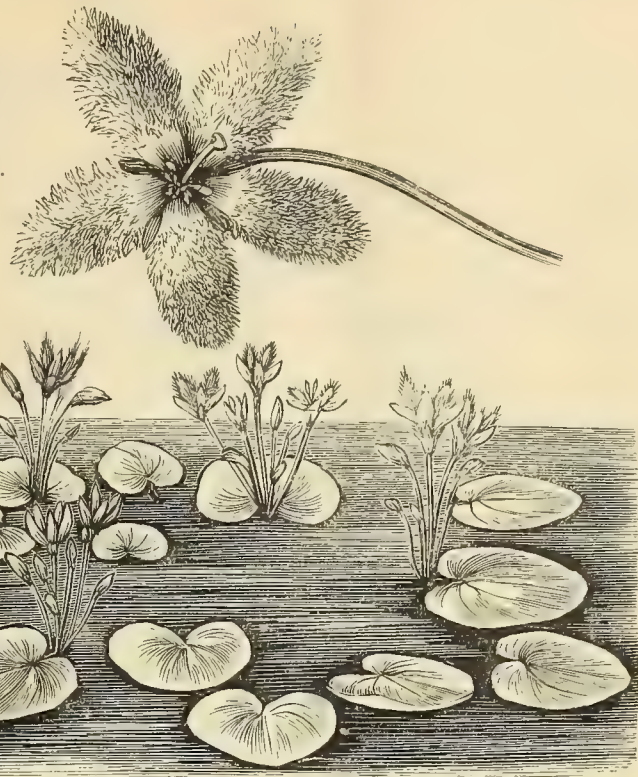
HEDYCHUM CORONARIUM.

(*The Garland Flower.*)

Hedychiums belong to the family of the ginger plant. This species grows from four to six feet high, each flower-spike producing, for several weeks in succession, lovely snow-white blossoms over two inches across, resembling an orchid in form, and deliciously scented. It may be grown as a semi-aquatic, by planting in a tub and placing it where the soil will be kept wet, but the crowns must not be immersed. If kept warm enough, it will flower the whole year round. 50 cents each.

CANNA EHEMANNI.

This is the most magnificent Canna ever introduced. It grows to a height of five or six feet, with large green banana-like foliage, and the flowers are marvelous in size, being as large as a Gladiolus bloom. They are of a rich, crimson scarlet color; and hang pendent in clusters from the top of the plant. Each stalk produces a succession of these clusters, one after another, for a long



WATER SNOWFLAKE.

time. This Canna may be treated as a semi-aquatic by planting it in a large tub, partly immersed in water. It is a grand acquisition, and should be in every garden. 40 cents each.

PAPYRUS ANTIQUORUM.

This is the true Egyptian Paper Plant. From the snow-white pith of its triangular stalks the first paper was made. They are five to eight feet high, and support at the top a tuft of long thread-like leaves, which give the plant a graceful and striking appearance. It grows finely in shallow water with rich soil or mud, and makes a splendid companion for flowering aquatics. It will also flourish and make a fine clump in the garden, with no more water than Cannas require to make them do well. 75 cents each.

CYPERUS ALTERNIFOLIUS.

Will also grow with its roots submerged in water, its reedy stems, with tufted heads, resembling miniature palm trees. 25 cents each.

CYPERUS STRICTUS.

This is like *C. alternifolius*, but stiffer in outline. It grows to the height of six to seven feet, in rich soil and shallow water, and should be wintered in the greenhouse. 50 cents each.

FLOATING PLANTS.

These are curious plants, growing in and upon the water without connection with the soil. They are very interesting, and essential to any well arranged water garden.

PISTIA STRATIOTES.

A very curious plant which floats upon the water, with its long, fibrous roots extending downwards, but having no connection with the soil. It forms a rosette of light green, velvety leaves, about six inches across; likes plenty of heat, and must be shaded from the direct rays of the sun. It does finely in a tub of water, placed in ainery or greenhouse in summer, or in the open air under a tree. It is sometimes called the Water Lettuce. 25 cents each, \$2 per dozen.

PONTEDERIA CRASSIPES MAJOR.

This plant, described on another page, will float upon the surface of the water like Water Lettuce. Each crown produces neat rosettes of leaves, the stems of which are enlarged in the middle into curious oval bulbs filled with air cells, which enable the whole plant to swim. 40 cents each.

SALVINIA BRAZILIENSIS.

A very pretty floating plant, something like our native "Duck-meat," but very much larger. Its leaves have a delicate hairy surface. Tender. 25 cents each.

AZOLLA CAROLINIANA.

(*Floating Moss.*)

A floating plant which produces no flowers, but is exceedingly interesting on account of the delicacy and beauty of its foliage, which resembles a lovely green moss or *Selaginella*. A small plant placed in a pan of water soon covers the whole surface and presents an appearance something like a pan of *Selaginella densa*. If grown out-doors, in full sunshine, the plant assumes a reddish color. It is entirely hardy. 25 cents each.

HARDY AQUATICS.

The roots of the native American Water Lily will not endure actual freezing, but still it is commonly called hardy. When we speak of an aquatic as being hardy, we do not mean that it is so in the same sense that *Platanus* are, but that it will endure the Winter when placed in the water below the reach of frost.

The Best Time to Plant.—The hardy *Nymphaeas* and *Nelumbiums* should invariably be planted during spring and early summer. It may be done up to the first of August, but never in the fall, if it can be avoided.



NYMPHAEA ODORATA.

NYMPHAEA ODORATA.

The praises of our fragrant Water Lily can never be too highly sung. Its lovely white flowers are worthy of a place besides the most costly exotics. It can be successfully grown in a tub, and wintered in a cellar. Does well in one of the beds in the Lily tank, but a more satisfactory way than either is to naturalize it in a pond or slow-running stream. Do not tie a stone to it and sink

it, as many recommend, but push it carefully into the mud with the hands or feet. Where the mud is very rich, it will produce flowers six inches, and leaves thirteen inches across. Strong roots, by mail, 35 cents each, or three for \$1; by express, 30 cents each, \$3 per dozen.

NYMPHAEA ODORATA MINOR.

A variety of our native Water Lily, possessing the same qualities of hardiness and fragrance, but producing flowers only one and a half or two inches across. Color, white, tinted with pink on the outside. Prices the same as for *N. odorata*.

NYMPHAEA ODORATA ROSEA.

(*Hardy Pink Water Lily.*)

This is the famous Pink Water Lily of Cape Cod, and is the grandest acquisition ever made to our list of hardy *Nymphaeas*. It possesses all the desirable qualities of the white flowered species, hardiness, freedom of bloom and delicious fragrance, with the added charm of deep pink color, a shade somewhat like the rose called "Hermosa." The flowers average a larger size than the white, and are in great demand in the large cities and at watering places during their season. We unhesitatingly



NELUMBIUM SPECIOSUM.

pronounce this the most lovely and desirable of all the hardy Water Lilies, and are happy to offer good roots this season at a reduced price. \$2 each; six for \$10.50, twelve for \$20.

NYMPHAEAE ALBA.

The native Water Lily of England, possessing the same early and late blooming qualities as "candidissima," but with smaller flowers. \$1 each.

NYMPHAEAE ALBA CANDIDISSIMA.

This is a large-flowered variety of the Water Lily of England and other parts of Europe. Though not a tropical species, it does not object to a warm climate, and does finely under the same conditions as the tender

ones. When naturalized in still water, with a very rich soil, it will produce leaves thirteen inches wide, and flowers six inches in diameter. The latter are pure white, the petals being very broad and much more waxy than those of *N. odorata*. It begins to flower earlier, and continues in bloom for a much longer time than that species. It is a great favorite with us, and the universal testimony of our customers goes to prove everything we have said in its favor. \$3 each.

NYMPHAEAE FLAVA.

(The Yellow Water Lily.)

A charming addition to any collection, having leaves variegated with brown, and flowers nearly as large as



EGYPTIAN LOTUS, GROWN IN A TUB

those of *N. odorata*. They are of a bright golden yellow color, and deliciously scented, something like locust-tree blossoms, but more delicate. It is only half-hardy at the north, and should have a warm position in summer. It succeeds perfectly in a warm climate. 50 cents each.

NYMPHAEAE MARLIACEAE CHROMATELLA. (*New Hardy Yellow Water Lily*.)

This grand new variety has been highly praised in Europe, and is one of a collection which took the first prize at the Paris Exposition of 1889. Having given it a trial in our own grounds the past summer, we recommend it without hesitation as a great acquisition. The general habit of the plant is like *Nymphaea candidissima*; a vigorous grower, with fine, bold foliage, which, in a young state is variegated with brown, and is a continuous bloomer from early summer until frosty weather. It is perfectly hardy and will no doubt supersede *N. flava* in cold climates. Its fragrant flowers are fully as large as the common Water Lily, with broad waxy petals, and of a beautiful light yellow color, with bright orange stamens. Flowering plants, \$3.50 each

NYMPHAEAE PYGMAEA.

(*The Dwarf Chinese Water Lily*.)

A little gem, producing leaves from two to three inches across, and deliciously scented white flowers no larger than a silver half-dollar, which open at noon and close at sunset. It has the additional merit of being hardy. It blooms both early and late, and is the smallest flowered species in cultivation. \$2.50 each.

NYMPHAEAE TUBEROSA.

A native species having white flowers with green sepals and only a faint perfume. An interesting variety. 50 cents each.

NELUMBIUM SPECIOSUM.

(*Egyptian Lotus*.)

This was cultivated in Egypt, in most ancient times, where its seed was known as the "Sacred Bean." It is the "Sacred Lotus" of India and China, and is also cultivated in Japan. This wonderful plant, though coming from such tropical and semi-tropical regions, has proved to be entirely hardy in this country, enduring any degree of cold, short of actual freezing. We have, for many winters, kept it in water upon the surface of which ice is formed from four to eight inches thick. No aquatic plants have a more tropical aspect than *Nelumbiums*. We have naturalized it in one corner of a mill-pond, where the mud is very rich, and where, in summer could have been seen, among abundance of noble leaves from one to two feet in diameter, hundreds of buds, in all stages of development, and five hundred expanded flowers at one time. *N. luteum* is a beautiful plant, and well worthy of a place in any collection; but *N. speciosum* far surpasses it in ease of culture, rapidity of growth and freedom of bloom. It will flower the first season it is planted, which is seldom the case with *N. luteum*, and is constantly in bloom from July until October. In the "Water Lily Garden," *N. speciosum* has produced some leaves thirty inches across, on foot-stalks five and six feet in length, and flower-stalks of a total length of from five to seven feet. The first day the flowers appear like gigantic tea-rose buds, of a bright rose color. The second day they open like a tulip, the base of the petals being creamy white, most beautifully and delicately shaded off toward the end into bright pink. In their last stages of expansion they measure from ten to thirteen inches from tip to tip of petals. They are also delightfully fragrant. The plant is of a rambling nature, and when placed in a pond, spreads rapidly. If grown in a Lily tank, along with a general collection, it should be planted in the separate compartment specially arranged for it. It may be grown in a large tub, but better in basins such as we have described. It should not be planted till the growing season is fully arrived, but we will ship to southern customers earlier than to northern. (See cuts, pages 9 and 23.)

Strong Flowering Tubers. \$3 each, three for \$8

Extraordinary Sized Tubers. \$5 each

Established Plants. During mid-summer we can supply strong plants, growing and established in boxes of soil, at \$5 each. They are somewhat heavy for transportation, but are sure to give excellent results.

Seeds. Home-grown seeds of the true variety, 25 cents per seed, \$1 per packet of five seeds. See directions for planting Japanese seeds

Colored Plate. A fine colored plate, 14 x 21 inches, showing the flower of the Egyptian Lotus (actual size), will be mailed on receipt of six cents

JAPANESE NELUMBIUMS.

We offer the following varieties, grown from direct importations from Japan. Their habit and general appearance is the same as *N. speciosum*, but some have larger and bolder flowers, of a more globular form, and distinct fragrance. They are also hardy like the others, and are varieties of *Nelumbium nuciferum*, a Japanese species.

NELUMBIUM ALBUM STRIATUM.

The flowers of this are white, the edge of each petal irregularly marked and splashed with crimson. A magnificent and distinct variety. \$6 each.



NELUMBIUM LUTEUM. (THE AMERICAN LOTUS.)

NELUMBIUM ROSEUM SEMI-PLENUM.

This grand Japanese variety has flowers of a uniform deep rose pink color, something like *Nymphaea Devonensis* or the Cape Cod Lily, and much darker than *N. speciosum*. They have a greater number of petals than the other varieties, and may be called half-double. One of the finest yet introduced. \$4 each.

NELUMBIUM ALBUM GRANDIFLORUM.

A magnificent variety, distinct from the small-flowered white one offered in former catalogues. The flowers are of the largest size; white, without a tinge of the pink color seen in *N. speciosum*. It is at present the rarest variety for sale in this country. \$5 each.

JAPANESE NELUMBIUM SEEDS.

(*Nelumbium nuciferum*).

Mixed Varieties.—Those who wish to have Lotus flowers the first season will, of course, plant tubers. But to those who are willing to wait a year or two for bloom, we offer imported seeds. Each nut should have a hole the size of a pin drilled in its shell, with the point of a penknife, or by using a file, to allow the moisture to penetrate the kernel, or otherwise they will not germinate. They should then be planted in warm water in a greenhouse, in pots of soil, and afterwards planted out. If it is desired to sow them directly in a pond, it should not be done until warm weather, and then in water about one foot deep. They may be either dropped in the water and allowed to sink, or pressed into the soil two or three inches. Packets of six seeds, 50 cts.; fifteen seeds, \$1.

NELUMBIUM LUTEUM.

(*American Lotus*).

Though a native of this country, it is not common. There is scarcely any difference between this and *N. speciosum*, except in the color of the flowers, which are of a rich sulphur yellow. They are as large as a quart bowl, and have a strong fragrance, entirely unlike that of a *Nymphaea*. Still, warm water and very rich soil are the conditions for success with these noble plants. A large patch of them, with hundreds of flowers and buds, is a sight never to be forgotten. Tubers, \$1.50 each.

AMERICAN LOTUS SEEDS.

These should also have a small hole drilled in the shell, and be treated in all particulars as recommended for the Japanese varieties. 50 cents per dozen.

ZIZANIA AQUATICA. (*Wild Rice*.)

This native annual aquatic grass is truly ornamental, especially when producing its graceful panicles of bloom or seed, on stalks from four to ten feet high. It should be grown in shallow water. Plants (in spring only), 40 cents per half-dozen, 75 cents per dozen.

LIMNANTHEMUM NYMPHAEOIDES.

(*Villarsia*.)

This European relative of our American Floating Heart is perfectly hardy. Its *Nymphaea*-like leaves are variegated with brown. The flowers, which are freely produced, are about an inch across, of a golden yellow

color, beautifully fringed, and stand erect like the Water Poppies. Should be grown in shallow water. It spreads so rapidly that, if allowed full scope in a pond, it soon becomes a troublesome weed, hard to eradicate. 25 cents each.

SAGITTARIA JAPONICA FL. PL.

(*Double-Flowered Arrow-Head.*)

The foliage of this plant is similar to our native species, but the flowers are an immense improvement, making it one of the most charming additions to any collection of aquatics. The flowers are borne on spikes two feet high; are as large, full and double as the finest carnation or double balsam, and as white as the driven snow. This variety is perfectly hardy, and cannot be spared from the hardy ornamental waters. It is very distinct, and at the same time most desirable and handsome. 75 cents each.

SAGITTARIA VARIABILIS.

(*The Arrow-Head.*)

A native plant suitable for shallow water, growing about two feet high, bearing arrow-shaped leaves and pearly-white flowers. While the leaves are typical of the genus mostly in their arrow-shaped form, they are quite variable in some cases, giving the name to the species, and they are an interesting feature of the plant. 25 cents each, \$2 per dozen.

APONOGETON DISTACHYON.

A highly interesting tuberous-rooted water plant, which seems to like a long period of rest. It may be entirely dried off in May and kept dormant until fall, when it should be replanted in good soil, in a tub or large pan. It may then be placed in a greenhouse, where it will flower profusely all winter. It is hardy, if planted in a pond. Its leaves are oblong, about six inches by two. The pearly-white flowers, with black anthers, are produced in curious fork-shaped spikes, and are deliciously scented. 75 cents each.

PONTEDERIA CORDATA MAJOR.

This form of our native "Pickerel Weed" grows from two to three feet high, and is a much larger plant than the typical species. It is a plant for shallow water, with heart-shaped leaves, thick, on long stalks, and of a lovely green color. The pretty spikes of small blue flowers are produced all summer, and the species is very valuable for any hardy aquatic bed. Can be fully recommended. 25 cents each, \$2 per dozen.

LIMNANTHEMUM TRACHYS- PERMUM.

(*The Fairy Water Lily.*)

A very interesting plant, which we believe has never before been offered for sale. In general appearance it resembles a small water lily plant, with leaves about three inches across. Its pretty, pure white flowers, about three-fourths of an inch in diameter, are borne close to the leaves and upon the same stem. 25 c each

PITCHER PLANTS.

As these are water loving plants, we have thought best to introduce them here. *Sarracenia purpurea* is perfectly hardy. *S. flava* and *S. variolaris* have stood the winter in this latitude, naturalized in a peat bog. The most of this class, however are best grown in pots of fine, peaty soil, surfaced with live sphagnum, and kept standing in a pan of water in the greenhouse

DIONAEA MUSCIPULA. (*Fly Catcher.*)

A most wonderful little plant, called "Venus Fly-Trap." It has strange trap-like arrangements at the ends of the leaves, which, owing to the hair-like sensitive organs on the inner surface, will close instantly when touched by an insect or any light substance. (See cut. 25 cents each.

SARRACENIA DRUMMONDI.

The pitchers of this are two feet high, slender at the base, and widening at the top like an ordinary tin horn. They are of fine green, except towards the top they become pure white, netted with crimson veins. The flowers are crimson. This is the most beautiful of the family. 50 to 75 cents each, \$5 per dozen.

SARRACENIA FLAVA. (*Trumpets.*)

This is the largest of all, producing in its native swamp its handsome green, trumpet-like pitchers, often three feet high; flowers large and yellow. 35 cts. each, \$3 per dozen.

SARRACENIA PURPUREA.

This hardy northern species is not unworthy of a place in any collection. By giving it peaty soil and moss, it may be naturalized on the margin of a pond or stream; flowers purple. 25 cts. each, \$2 per dozen

SARRACENIA VARIOALARIS.

Pitchers from twelve to eighteen inches high, very curiously hooded at the top, these hoods being spotted with white; flowers yellow. An extremely distinct and remarkable plant. 35 cts each, \$3 per dozen.

SARRACENIA RUBRA.

A small-growing species, with tender trumpet-shaped leaves of a reddish color. Very neat when grown several in a pot together; flowers crimson purple. This is a little gem, and will always please. 25 cts. each, \$2 per dozen.

MISCELLANEOUS PLANTS FOR MOIST GROUND.

IRIS KAEMPFERI.

(*Japanese Iris.*)

One of the most beautiful classes of hardy plants in cultivation, and they cannot be too highly praised. They grow from three to four feet high, and when in bloom during June and July, present a most gorgeous appearance. As a moist soil is best adapted for growing them, nothing could be finer for planting on the borders of ornamental waters. They can also be grown in the garden with other perennial plants. To those unacquainted with this Iris, we would say that the flowers are different in form from any of the ordinary kinds, being broad and flat; they are single and double, and present the greatest variety of color, from the purest white to the darkest shade of royal purple, through pinks and blues, with gold and other markings. Good distinct varieties, 25 cents each, \$2.50 per dozen,

ACORUS JAPONICUS VARIEGATUS.

(*Variegated Sweet Flag.*)

The foliage is as beautifully striped with white as that fine hot-house plant called *Pandanus Veitchii*. It is one of the finest variegated plants in cultivation, and grows well either in the garden, or in moist situations by the water side. 30 cents each, \$3 per dozen.

SCIRPUS TABERNAEMONTANA.

(*The Porcupine Plant.*)

This is a true rush, growing from three to four feet high, producing leaves variegated in exactly the same manner as a porcupine quill, with alternate bands of green and pure white. It may be grown either as an aquatic or as a garden plant, but should never be grown with the crowns of the plant under water, for then the leaves lose much of their variation. Perfectly hardy. 30 cents each.

CYPRIPEDIUM SPECTABILE.

This is the most beautiful of all North American orchids, and, in our opinion, finer than any of the tropical species; grows best in wet places in partial shade, with peat and moss. Flowers white and pink. Good clumps, 50 cents to \$1 each.

NEW DWARF FRENCH CANNAS.

Wonderful improvements have been shown in this plant the past few years, and every season adds some striking novelties. The spikes of large flowers somewhat resemble Gladiolus, but their much more brilliant colors show grandly against the tropical foliage, which seldom exceeds four feet in height. The flowers range in color from the deepest crimson, orange scarlet and salmon to light yellow, many being beautifully mottled and streaked, and are frequently compared to orchid flowers on account of their delicate markings.

They are really a plant for everybody, being entirely free from insects, and succeed in all kinds of weather,

wet or dry, blooming without intermission from early in June until cut down by severe frost. The roots can be wintered in a dry cellar like dahlias, or may be potted and kept in bloom the greater part of the winter.—*H. A. Dreer.*

Price of all varieties, except those noted, 50 cents each; set of 15 varieties, \$7.

Admiral Courbet.—Flowers very large, of a light lemon yellow, flamed, striped and spotted with crimson; foliage pea-green. 3 feet high.

Antoine Chantin.—A most distinct and vigorous growing variety, with bright green foliage, with very large flowers of a bright orange scarlet, overlaid with crimson. 4 feet. Extra fine, 60 cents each.

Adolph Weick.—Large spikes of brilliant crimson-scarlet flowers, produced in the greatest abundance. An old but superior variety. 4 feet. 35 cents each.

Ampere.—Bright green foliage, with large flowers of a bright orange scarlet. 3 feet.

Goury.—Flowers very large, of a rich, pure salmon, splashed and striped with orange and crimson; foliage pea-green. 2½ feet high.

Isaac Casati.—Strong, vigorous grower; foliage green with purple ribs, flowers rich carmine, passing to orange scarlet at the edges. 4 feet.

L. Christen.—Flowers of a rich orange scarlet, suffused with carmine; foliage bronzy purple. 4½ feet.



FRENCH CANNA.

Jacquemet Bonnefond.—Foliage green, with bronzy purple ribs and veins; flowers very large, rich, deep orange. 3 feet. 60 cents.

Professor David.—A most distinct, handsome and novel variety; flowers large, of a deep cinnamon red, edged and streaked with old gold. 3 feet.

Souv. de Asa Gray.—Foliage bright green; flowers large, of a light salmon color, flaked and streaked with carmine. 3 feet.

W. Pfitzer.—Flowers very large, of a bright crimson scarlet color; foliage deep green. 4½ feet. 60 cents.

Geoffroy St. Hilaire.—A strong-growing and very free-flowering variety, with rich, bronzy purple foliage, and large well-shaped flowers, of a rich glowing scarlet

overlaid with orange; a most distinct and showy variety. 4½ feet. 60 cents.

Jules Chretien.—Plant dwarf but very vigorous; foliage of a cheerful pleasing green; flowers large, with long, broad petals of a bright, glowing, cerise crimson. One of the best. 3 feet. 60 cents.

EUCALYPTUS CITRIODORA.

(Lemon-scented Gum Tree.)

The leaves of this plant have a delicious fragrance, more pleasing than the Lemon Verbena. It may be wintered in a greenhouse or cellar. In California and the south it makes a small tree. 50 cents each.

BAMBOOS AND GRASSES ADAPTED TO MOIST PLACES.

ARUNDO DONAX.

This noble plant is a plain, green-leaved "Giant Reed," and grows to the height of twelve or fifteen feet. 50 cents to \$1 each.

ARUNDO DONAX VARIEGATA.

The variegated form of the above; white and green five feet high. 75 cents each.

BAMBUSA METAKE.

This is a true Bamboo, a native of Japan. It grows from eight to twelve feet high, and has bright green, gracefully drooping foliage; It is nearly evergreen in this latitude, and hardy as far north as New York. 35 cents each; clumps, 75 cents and \$1

ERIANTHUS RAVENNAE.

From nine to twelve feet high, resembling the Pampas Grass, but perfectly hardy. Clumps, 75 cents

EULALIA JAPONICA VARIEGATA.

A splendid grass, with leaves striped with white; sends up stalks from four to six feet high, bearing fine, curly feathered plumes. 25 cents each; clumps, 50 cents and 75 cents.

EULALIA JAPONICA ZEBRINA.

This is like the above, except that the leaves are marked cross-wise with broad, creamy-white bands, instead of being striped lengthwise. It also bears feathery plumes. 30 cents; clumps, \$1

EULALIA GRACILLIMA UNIVITTATA.

A new species, of most graceful habit. Narrow green leaves, with a silvery white midrib; smaller plumes, and the plant of more dwarf growth than the older kinds 30 to 50 cents each.

GYNERIUM ARGENTEUM.

(Pampas Grass)

The most effective and stately of all Ornamental Grasses, producing, with its graceful foliage and silvery

plumes, a grand effect among a group of a similar character placed near ornamental water. Strong, 75 cents to \$1 each.

PANICUM PLICATUM VARIEGATUM.

(Palm Grass.)

The leaves are very broad for a member of the grass family, and have the appearance of Palm leaves—hence the name. Very pretty and graceful. Must be wintered in the greenhouse. 25 cents



AQUARIUM PLANTS, ETC.

Our experience with aquariums has caused us to arrive at the conclusion that the plants which are perfectly adapted for this purpose are very limited in number. The two kinds here offered are unsurpassed.

WATER RANUNCULUS.

This is not the common *R. aquatilis*, but a larger growing exotic species recently introduced. As seen growing in an aquarium, it rivals in its delicate, vivid greenery the most beautiful hot-house ferns. It is, moreover, the best oxygenator we have ever used. No one need have difficulty in keeping the fish healthy with a thrifty plant of this in the water. Its roots should be fastened in a small pot or vessel of good soil. 50 cents each.

MYRIOPHYLLUM HETEROPHYLLUM.

This stands next in order as a useful plant for the purpose, and is also very ornamental. 25 cents each.

JAPANESE GOLDFISH.

We are prepared to offer a few of these lovely ornaments for aquariums or water gardens—both the fringe-tail and fan-tail varieties. 75 cents to \$1.50 each.

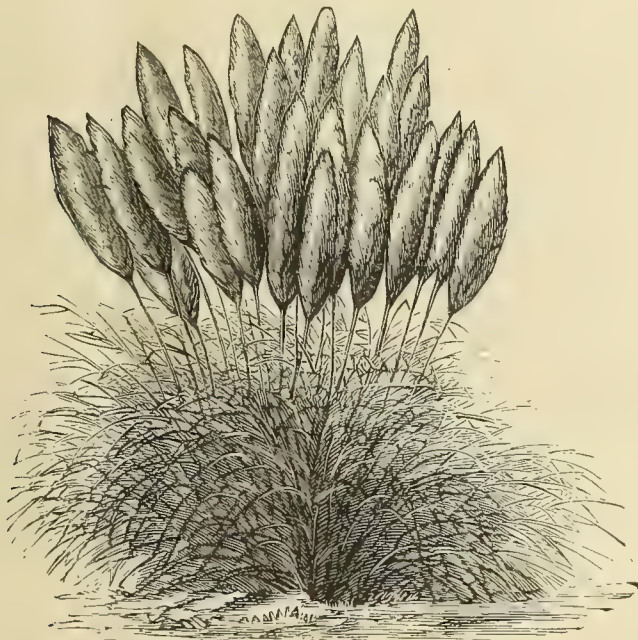
ORCHID PEAT.

We have recently introduced a fibrous peat of superior quality, which is entirely distinct from anything of the kind found in the Eastern States. It is tough, elastic and durable, containing scarcely any waste matter. We are supplying many of the best orchid growers with it. Sample sent on receipt of a stamp. Price, \$3 per sack, containing about one barrel.

GREENHOUSE PLANTS.

We are also prepared to furnish choice Greenhouse and Hot-house Plants, Roses, Orchids, Palms, Crotons, Ferns, etc.

Selections may be made from the catalogues of other florists, and we will fill orders to the satisfaction of our customers.



PAMPAS GRASS.



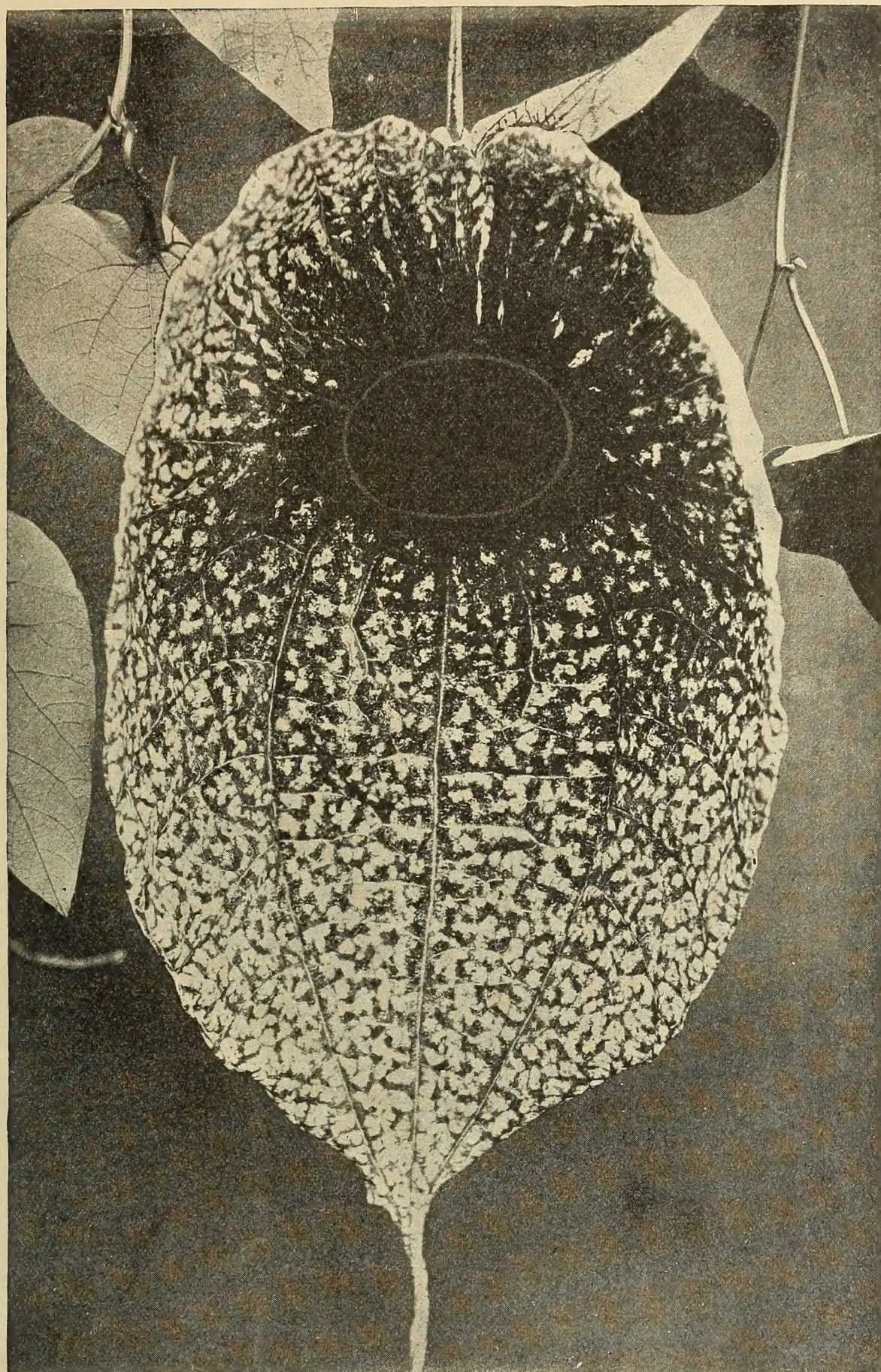
Copyrighted: SIDE VIEW OF A FLOWER-BUD OF THE "DUCK PLANT." MUCH REDUCED.
From Garden and Forest.

THE DUCK PLANT OR PELICAN FLOWER.

Aristolochia grandiflora.

It is well known to botanists and lovers of flowers that the genus *Aristolochia* furnishes many examples of strange and ludicrous flower forms and novel colors. *Aristolochia elegans* has become a popular plant, possessing both oddity and beauty. *A. ornithoglossa* has "flowers with the head of a hawk and the beak of a heron, with the wattles of a Spanish fowl." *A. reticulata* has flowers resembling the face of a monkey. *A. Sappho*, the hardy species, is called the "Dutchman's Pipe."

A. grandiflora, which we now have the pleasure of reintroducing to cultivation, is one of the most wonderful plants known, and its flowers are among the largest in the world. At first sight the plant reminds one of a Morning Glory vine. The leaves are heart-shaped, and from six to ten inches long. The flower-buds in different stages of growth, hanging on slender stems from



Copyrighted : OPEN FLOWER OF THE DUCK PLANT. MUCH REDUCED.
From Garden and Forest.

the vine, certainly form one of the most remarkable sights in the vegetable world. As will be seen by the engraving, the resemblance to the form of a duck or pelican is very close.

The fully developed bud measures fifteen to eighteen inches in length, and is as large as a good sized duck. This is exclusive of a slender string-like appendage attached to the lower end, which is often over three feet long. The color of the "ducks" is greenish yellow; and that of the full open flower, deep wine purple, mottled with creamy white. The center of the flower appears like purple velvet. The engravings are exact copies of photographs taken in our greenhouse.

Our plants have produced flowers measuring twelve by eighteen inches with forty-two inches of tail, making a total length of sixty inches! The plant is of easy culture and rapid growth—twenty or thirty feet in a season—flourishing in any rich soil or in a mixture of loam and decayed manure with a little bone meal. It may be planted out in a warm greenhouse, or grown in a tub, which can be kept in the open air and taken in before frost. The plants we offer will bloom the first year. Flowers are produced at all seasons of the year if plants are kept in a growing temperature. In California and the Southern States it is of the same hardiness as the Evening Glory. Plants ready May 1st.

Strong plants, \$1.50 each; Second size, \$1.00 each.

PENNSYLVANIA HORTICULTURAL SOCIETY, HORTICULTURAL HALL, BROAD STREET,
PHILADELPHIA, Nov. 27th, 1890.

MR. E. D. STURTEVANT, Bordentown, N. J.

Dear Sir: At the regular stated meeting of the Society held Nov. 18th, it was, on motion, ordered that the thanks of the Penna. Horticultural Society are due and are hereby tendered to Mr. E. D. Sturtevant for the novel display of *Aristolochia grandiflora* at the recent exhibition. Also that the Society make a special award of — dollars for same.

D. D. L. FARSON, *Secretary.*



The American country's hardy aquatics. It belongs to a large family of every continent, all of them beautiful and striking. In proper, the family includes the *Nelumbiums*. The so-called "Nilotic" * * It has only been discovered in recent years that the roots of these growths would survive the winters in this climate. But when E. D. Sturtevant found them in a mill-pond, near Bordentown, N. J., where they now cover half an acre, it was then that a new era in aquatic gardening was at hand. * * These flowers and plants have lately been planted in Union Square, in the Fountain Basin by the terrace in Central Park and in a pond specially constructed for them near Fifth avenue and Seventy-fifth street. —*York Tribune*, August 15th, 1886.

Delighted Historians.

!Trip of the Trenton Society to Bordentown.

Probably the most interesting, as well as the most instructive, meeting in which the Trenton Natural History Society has ever taken part was the one held yesterday at Mr. E. D. Sturtevant's garden, on invitation of the Lotus Club of Philadelphia, it being the occasion of their annual meeting for the discussion of the flower from which they take their name; and in the whole United States there is no place where such profusion and variety of this interesting plant may be found. On arriving at Bordentown, the society were escorted to Mr. Sturtevant's private garden to see the *Victoria regia*, that queen of all lilies; and queen it was indeed, with its pure white flowers, surrounded by leaves of dark green, five or six feet in diameter. After viewing it and others of its kindred, the members were taken to his other ponds, and there saw in rich and profuse bloom many rare and costly plants, for which the place is justly noted. * * After wishing God-speed to one another, the members left for their respective homes, thoroughly delighted with their day spent at Bordentown. * * *—*Daily State Gazette*, Trenton, N. J., September 10th, 1886.

Lincoln Park, Chicago.

The Water Lily Ponds at Lincoln Park have been a great attraction the past summer; so much so that it has been decided to considerably enlarge them for next season and to increase the number of plants. The two plants of *Victoria regia* have bloomed frequently during the season, and though not covered in any way were apparently uninjured by the recent unusually cold nights, the thermometer dropping to 40° the night of September 18. The water in one of the ponds (that containing the Victorias) is heated by steam pipes, while the other has no artificial heat, and the difference of growth of two plants of *Nymphaea Devonensis*—one in the heated and the other in the unheated pond—is very noticeable. That in the cold pond has made much less growth and the flowers are smaller in size and not so well colored as that in the heated pond, though the former was the stronger plant when placed in the pond. A plant of *Nymphaea Zanzibarensis azurea* in a cold pond has made a magnificent show all summer, bearing with remarkable freedom its immense blue blossoms. An excellent feature of the display has been that the name of each variety was indicated by a painted label which could be easily read by all visitors.—*American Florist*, Chicago, Oct. 1st, 1880.

An afternoon stroll took me this week to a mill-pond in lower New Jersey which resembles other mill-ponds in the same and neighboring states in many respects, but differs from them in one as the Nile differs from the Delaware, for at a point not more than half a mile above the rumbling mill-stone, the bed of the stream is covered with a dense growth of Lilies—not the common water lilies so abundant in this part of the world, but the veritable Egyptian Lotus (the *Nelumbium speciosum* of the learned). A botanist coming unexpectedly upon this strange sight, in a rolling country given up to the cultivation of corn and wheat and potatoes—the ordinary products of the homely truck-farm of the Eastern States—might well rub his eyes in astonishment, and ask himself (or Farmer Hance) by what curious chance these broad leaves towering high above the water, and interspersed with huge pink blossoms of delicate tint and perfume, came to make their home in this sequestered corner of New Jersey. The answer is a simple one. One of the most noted florists of America has lived in Bordentown for fifteen years or so, and the Lotus plants that give so odd and Oriental an aspect to Black's Creek are the offspring of a single tuber brought from Kew Gardens, London, some ten or twelve years ago, and set out in the black mud of New Jersey as an experiment.—*The Critic*, Aug. 3rd, 1889.

